LJS BIBLIOTHECA SCHOENBERGENSIS
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SCHOENBERG DATABASE OF MANUSCRIPTS LJS

m^rs giles

The chaine is in length 4 perches dd into 100 linckes. wherefore 4 chaines in length & 10 in bredth doe make an Acre or 100 linckes in length and a 1000 in bredth. vpon wch ground this table is calculated

1	00000		
	75000	3	R
	50000	2	
	25000	1	
	18750	30	P
	12500	20	
	.6250	10	
	.5625	9	
	.5000	8	
	.4375	7	
	.3750	6	
	.3125	5	
	2500	4	
	1875	3	
	1250	2	
	625	1	

so yt

13|57500 are 13 A: 2 R: 12 P.

The brasse semicircle

ye right shadow is from ye perpendicular lyne to 100. & from 100 to ye horizon tall line is ye contrary shadow.

The proportion in a right shadow is as 100/or 60 is to ye parts cutt so is ye distance to ye heighth.

The proportion in a contrary shadow is as ye parts cutt, 60 or 100 so is ye distance to ye heighth.

p45.

of Progression   Joh: But: p 44 Lib I.

de natli progressione 1·2·3·4·5·6·7·8·9·10·

si terminus progressionis vltimus nrum parem contineat, ipsius dimidium multiplicabis in imparem proxime numerum sequentem. velut in progressione posita, quoniam vltimus terminus 10 numerus par est, ipsius dimidium, quod est 5 multiplica in 11, fit 55, quæ est summa totius decadis. si autem progressio terminetur impari nro, is partitur in 2 & proveniens vna cum residuo quæ semper est monas, in eum qui partitus est numerum multi-
p 45· plicatur, fitque summa progressus. sicut in exemplo nostro, si fuerit vltimus terminus 11, partire in 2, provenit 5 quod cum monade residui fit 6 multiplica in 11, fit 66, in summam progressus, a vno ad vndecim.

Aliter etiam, & vnico modo constabit additio. partire per æqualia vltimum progressionis numerum, quem auctum monade suo ipsius dimidio multiplicabis, velut in progressione decadis, partire 10 per æqualia fit 5, auge 10 monade fit 11, multiplica in 5, fit eadem quæ prius summa 55. in altero autem, cuius finis est 11, partire 11 in 2 fit $5\frac{1}{2}$ adde 1 ad 11, fit 12, multiplica in $5\frac{1}{2}$ fit 66. sed quia multiplicatio numerorum cum particulis nondum est posita, hoc interim documentum habebis, vt quoties fuerit particula semissis in dimidio, ipsa reiecta, multiplicationem

de pgressioē

sicut antea facies, & ad pductum iunges dimidium adaucti monade numeri, velut hic, ducito 5 in 12, fit 60, adde 6, fit 66.

Alio praeterea modo progressiones dicuntur, cum scilicet pares numeri incipientes a dyade, vel impares a monade, procedunt ordinatim continuato dyadis excessu. Ad colligendum autem parium summam, sic operaberis, ultimum pgressionis nrum, quem nunc ponamus esse 10, in duas aequaliter
p46. partes distribue, quae sunt 5 & 5 ad alterum adde 1, fit 6, multiplica in 5, fit 30 quae est summa omnium parium numerorum intra decem. si autem fuerit imparium colligenda pgressio, ultimus impar, utpote 13, dividatur in 2 & provemente 6 una cum residuo 1, quod est 7, in se ducto, pducetur omnium imparium, ab, usque ad tredecim, summa 49.

Joh: Bul: Lib. 2 p. 91

De particularum fragmentorumque ratio
nibus, quomodo dignoscantur.

Sit propositum dare raoem, quam habet
$\frac{3}{5}$ ad $\frac{4}{7}$ disponantur datæ particulæ atque
multiplicentur in decussim,
fientque producta 21 & 20. quæ est igitur
rao 21 ad 20 eadem est $\frac{3}{5}$ ad $\frac{4}{7}$ hoc est
sesquivigesima ye like for mixt numbers
having first reduced ym to improper fractions
if a whole number be compared to a fraction
put yt whole number into ye forme of a
fraction & worke as before.

p 95 De componendis
racionibus numerorum.

volens itaque sesquialteram cum sesqui
tertia componere. $\frac{3}{2} \cdot \frac{4}{3} = \frac{12}{6}$. rao duplex
is ye same wth multiplication of fractions

p 97 Quod si plures quam duæ raoes componi debeant
vtpote tres, sive quatuor. ex duabus primum
fiat vna, cui & tertia, deinde & producto
quarta iungatur more prædicto.

p 98 De substractione raonum.

Is ye same wth substraction of fractions

The rule of false ~~position~~ double position

p 112. Lib 2. But:

~~However~~ Here not multiply ye positions by ye errors but when ye errors be both ~~ex~~ defects substract ye lesser ~~product~~ out of ye greater & ye lesser ~~error~~ position out of ye greater then work by ye rule of 3.

as yt difference of ye errors is to ye dreence of ye positions so is eyther of ye errors to ye position placed directly over his head wch 4th terme add to ye position by wch you wrought

but when ye errors are both excesses you must substract yt 4th terme found from ye position.

If ye errors be of dreent kinds (viz one of ym an excesse & ye other a defect you must add ye errors together but you must as formerly substract ye lesser position out of yt greater. then say by yt rule of 3 as ye summa of ye errors is to ye dreence of ye positions so ye error of excesse to a 4th number wch is to be substracted from ye position over yt errors head. or so ye error of defect to a 4th number wch is to be added to ye position over yt errors head.

species vel (ut alij vocant) potestates

Q. C. qq: qC. CC. &c

Ubi advertendum a recentioribus ortis quotquot ante Diophantum editum Logisticae rudimenta tradidere, Quadrato Cubum vocari nunc supersolidum, nunc surdesolidum, nunc etiam primum Relatum. Cubocubum vero, ab ijsdem dici Quadratocubum, quia videlicet est quadrati Cubus, vel Cubi quadratus, quod adnotasse operaepretium duxi, ne quem in authoribus legendis nominum ambiguitas remoretur.

Bach. in Diop. def. 1. p. 3.

Dioph: Quadratum Dynamin vocat, quae vox potestatem sonat, quia vid. quadratus est veluti potestas cuiuslibet lineae, et passim ab Eucl. pro id quod potest linea quadratus illius designatur. Itali, Hispanij eadem fere de causa Censum vocant, quasi dicas redditum, proventumque, q. a latere seu radice, tanquam a fundo solo quadratus oriatur. inde factum ut Gallorum nonnulli et Germanorum corrupto vocabulo Zenzum appellarint. idem in def 2 p. 4.

Anthony Logist.

Nich. Tartalia. Petr. Ramus, Christ. Clavius.

Bach. in Disp. def. 10 p 10.

de + et −

si cui mirum videatr qd minus p minus multiplicatum efficiat plus, et huius rei demonstraoem requirat, legat pet: Nonium pte 2 suæ Algebræ, cap. 4. Bach. in Dioph. def. 9. p 9

Dx. D.

Reductiones post Æquationem facta adhibendæ; quæ dabunt faciliorem operationem in numeris Arithmeticis.

$BC + BD$ ad $C + D$ in B

$RBp + RB$ ad $p + 1$, in RB

$pB + pC - pR$ ad $B + C - R$ in p

$D + DB + DC$, ad $B + C + 1$, in D

$BqCq - BC$: ad $BC - 1$ in BC.

$BRp - BRC$. ad BR in $p - C$

$\frac{BqCq + Cqq}{Bq + Cq}$ ad Cq

$\frac{AB}{D}$ ad $\frac{A}{D} \times B$. vel $\frac{B}{D} \times A$.

$\frac{BC - BD}{BC}$ ad $1 - \frac{D}{C}$.

$\frac{DK + BD}{G}$ ad $\frac{K + B}{G} \times D$

$\frac{BA + CBA}{C}$ ad $\frac{B + CB}{C} \times A$

vel $\frac{B}{C} + B$; $\times A$

$$\frac{2\,Cp + Bp - Bq}{C}\ (p\ C) \qquad 2p + \frac{Bp - Bq}{C}\ (p\ B)$$

$$2p + \frac{p - B}{C} \times B$$

$$\frac{Bq + BD - BC + CD}{CF} \text{ ad } \frac{B + D}{CF} \times B + \frac{D - B}{F}$$

$$\frac{Bq + C - D}{C - D} \text{ ad } \frac{Bq}{C - D}$$

$$\frac{Bq}{4} = \frac{B}{2}q \left\{ \frac{Bq}{16} = \frac{B}{4}q \right\} \frac{Bq + 4}{4} = \frac{B}{2}q + 1$$

Similiter in Cubis

$$\frac{Bc}{Dc} = \frac{B}{D}c \left\{ \frac{Bc}{8} = \frac{B}{2}c \right\} \frac{Bc + 8}{8} = \frac{B}{2}c + 1$$

$$\frac{Bq - Cq}{D} \text{ ad } \frac{B - C}{D} \times B + C \text{ vel. } \frac{B + C}{D} \times B - C$$

for + & − in y^e rectangles ballance one another./

si [illegible]
[illegible]
vc[illegible]

si [illegible]
ho[illegible]
bi[illegible]

co[illegible]

2[illegible]

B: 8[illegible]
C = 6[illegible]
D: 6[illegible]
F = 11[illegible]
G: 9[illegible]
K: 91[illegible]

[illegible]

[illegible]

[illegible]

GD [illegible]
CK[illegible]

Dr D.

si plures vocales pro ignotis ponantur, Æquatio toties repetenda est, ut reliquæ vocales omnes reducantur ad primam A.

si 8 ulnæ holoserici rubri cum 6 ulnis holo: viridis emantur simul 64 corona-
tis: atque iisdem pretiis 11 ulnæ rubri cum 9 ulnis viridis emantur 91 cor:
Quanti empta est ulna {Rubri / viridis

B = 8
C = 6
D = 64 cor.
F = 11
G = 9
K = 91.

Esto pretium {Rubri A / viridis E.

Jam $BA + CE = D$

ergo $E = \frac{D - BA}{C}$ ergo 6 virid. $D - BA$ et 8 ul: Rubri BA.

11 Rubri $= FA$

9 virid: $= \frac{GD - GBA}{C}$

ergo $\frac{GD - GBA}{C} + FA = K$

et $\frac{GD - GBA}{C} = K - FA$

vel $GD - GBA = CK - CFA$ vel

$GD - CK = GBA - CFA$: vel $A = \frac{GD - CK}{GB - CF}$

$GD = 576$ $GB = 72$
$-CK = 546$ $-CF = 66$
6 | 30 | 5 = A

Z = 9
B = 11
C = 7
D = 9

Secetur Z in tres nros A, E, I sic ut

$A + E + B = E + I + C = I + A + D$

Qre $A + E + B = I + A + D$

go $E + B - D = I$

et $A + E + B = E + \underline{\underline{I}} + C$

$E + B - D$

go $A + E + B = 2E + B - D + C$ et p antithesim

et $A + D - C = E$

Jam quia $E = A + D - C$

et $I = A + B - C$

$A = A$

$I = \overline{\overline{E}} + B - D$

$\overline{A + D} - C$: go

$I = A + D - C + B - D$

vel $I = A + B - C$

Qre $Z = 3A + B + D - 2C$

et $A = \frac{Z + 2C - B - D}{3} = 1$

$E = 3$

$I = 5$

$Z = 20$
$B = 5$
$C = 2$
$D = 1$

secetur 20 in tres nros A, E, I
vt $A + E - B = E + I + C = I + A - D$.

quia $A + E - B = E + I + C$

go $I = A - B - C$

$+ A - D$

$2A - B - C - D = A + E - B$

go $A - C - D = E$

Jam $A = A$

$E = A - C - D$

$I = A - B - C$.

$3A - B - D - 2C$

Qre $Z = 3A - B - D - 2C$

et $A = \frac{Z + B + D + 2C}{3} = 10$

$E = 7$

$I = 3$

Qtr 4^{or} [illegible]

A, E, I, O, vt.

$A + E + I = B = 10$

$E + I + O = C = 14$. sit suma Z.

$I + O + A = D = 13$

$O + A + E = F = 11$

48

Qr. $Z - B = O = 6$

$Z - C = A = 2$

$Z - D = E = 3$

$Z - F = I = 5$

$4Z - B - C - D - F = Z = \frac{B + C + D + F}{3} = 16$

~~[illegible]~~

Mercator emit pannos aliquot libris 270^{Z}. si tot libris emisset tot pannos minus 5^{B}. pro quoque panno solvisset $\frac{3}{4}^{C}$ libra plus, quam solvit: Quaeritur quot pannos emit? et quemque pannum

Emit pannos A	45
ergo pretium cuiusque $\frac{Z}{A}$	6
si emisset pannos $A-B$	40
fuisset cuiusque pretium $\frac{Z}{A-B}$	$6\frac{3}{4}$.

$$\frac{Z}{A-B} = \frac{Z}{A} + C = \frac{Z+CA}{A}$$

ergo $ZA = ZA + CAq - BZ - BCA$. vel

$$CAq - BCA = BZ$$

$$Aq - BA = \frac{BZ}{C}$$

$$\sqrt{u}: \frac{Xq}{4} + Æ: + \frac{X}{2} = A.$$

$$\frac{25}{4} + \frac{7200}{4} \; (+\,1800) \text{ sunt } \frac{7225}{4} \quad \sqrt{.}\ \frac{85}{2} + \frac{5}{2} = \frac{90}{2}$$

$= 45 = A$.

Duorum mercatorum sortes cum Lucris consumant 400 lib. [Z] prioris lucrum est 40 lib. [F] posterioris sors est 180 lib. [D] 2r {sors prioris / Lucrum posterioris

Esto sors prioris A
Lucrum prioris F
sors posterioris D
ergo lucrum posterioris $Z - A - F - D$

$A \cdot F :: D \cdot Z - A - F - D$

$FD = ZA - FA - DA - Aq$

$FD = \overline{Z - F - D} \times A - Aq$

$\sqrt{u}: \frac{Zq}{4} - FD : + \frac{Z}{2} = A$

$$\begin{array}{r} 8100 \\ -\,7200 \\ \hline \sqrt{900} \end{array} = 30 + 90 = 120 = A$$

Lucrum post: $60 = Z - A - F - D$

Quæruntur 3. nri tales ~~et~~ A, E, I ut $\frac{A}{4}, \frac{E}{2}, \frac{I}{7}$

$AE + A + E = B = 14$

$EI + E + I = C = 23$

$IA + I + A = D = 39$

Quia $AE + A + E = B$ go $E = \frac{B - A}{A + 1}$

Et Quia $IA + I + A = D$ go $I = \frac{D - A}{A + 1}$

go $E + I = \frac{B + D - 2A}{A + 1}$

et $EI = \frac{BD - DA - BA + Aq}{Aq + 2A + 1}$

go $EI + E + I = \frac{BD + B + D - Aq - 2A}{Aq + 2A + 1} = C$

vel $BD + B + D - Aq - 2A = CAq + 2CA + C$

$BD + B + D - C = CAq + Aq + 2CA + 2A$

$\frac{BD + B + D - C}{C + 1} = Aq + \frac{2CA + 2A}{C + 1}$

$\frac{BD + B + D - C}{C + 1} = Aq + \frac{2C + 2}{C + 1} \times A$

$\sqrt{u}: \frac{Xq}{4} + AE: - \frac{X}{2} = A = E$ in æquaot.

$\frac{2C + 2}{C + 1} = \frac{48}{24}$ (2 : $Xq = 4$: $\frac{Xq}{4} = 1 + 24$

$\sqrt{25} = 5$

$BD = 546$

$+B+D = 53$

$599 - 23$ C

Rem: $\frac{576}{C+1} = 24$ (24

-1

$4 = A$

Quær. 3 nri $\overset{4}{A}, \overset{6}{E}, \overset{8}{I}$, sic ut.

$$AE - A - E = B = 14$$
$$EI - E - I = C = 34$$
$$IA - I - A = D = 20$$

Quia $AE - A - E = B$ go. $E = \frac{B + A}{A - 1}$

et quia $AI - A - I = D$ go $I = \frac{D + A}{A - 1}$

Quare $EI = \frac{Aq + BA + DA + BD}{Aq - 2A + 1}$

$$E + I = \frac{2A + B + D}{A - 1}$$

Rem: $\frac{2A - Aq + B + D + BD}{Aq - 2A + 1} = C$ vel

$$DB - Aq + B + D + 2A = CAq - 2CA + C$$
$$DB + B + D - C = CAq + Aq - 2CA - 2A$$
$$\frac{DB + B + D - C}{C + 1} = Aq - \frac{2CA - 2A}{C + 1}$$
$$\frac{DB + B + D - C}{C + 1} = Aq - \frac{2C - 2}{C + 1} \times A$$

$\sqrt{u.}\ \frac{Xq}{4} + E : + \frac{X}{2} = A$.

$$\frac{1 + 8}{\sqrt{9} = 3} + 1 = 4 = A.$$

Datis $\overset{18}{Z}$ et ratione Quadratorum $\frac{R}{S} = \frac{25}{16}$.

Qu^r A, E.

Esto minor E ergo illius Q: Eq

$S \cdot R :: Eq \cdot \frac{REq}{S}$ Quad: maioris

eius radix $\sqrt{\frac{REq}{S}} = A$

ergo $\sqrt{\frac{REq}{S}} + E = Z$ vel

$\sqrt{\frac{REq}{S}} = Z - E$ vel ~~p~~ 8. 16 ought. chi.

$\frac{REq}{S} = Zq - 2ZE + Eq$ vel

$REq = SZq - 2SZE + SEq$

$REq - SEq + 2SZE = SZq$

$Eq + \frac{2SZE}{R-S} = \frac{SZq}{R-S}$

$Eq + \overline{\frac{2SZ}{R-S}} \times E = \frac{SZq}{R-S}$

$\sqrt{u:} \frac{Xq}{4} + Æ \cdot - \frac{X}{2} = E$

$X = \frac{2SZ}{R-S} = 64$

$\frac{Xq}{4} = 1024 + Æ = \frac{SZq}{R-S} = 576.$

sum 1600

$\sqrt{} = 40 - 32 = 8 = E$

Secetur 60^{Z}. in duas partes, ita ut
factus a Toto in partem minorem sit
ad Quadratum maioris ut 3^{S} to 4^{R}:

sit pars maior A eius quad: Aq.

g. minor Z − A

[illegible] × $\frac{Z}{Zq - ZA}$

$Zq - ZA \cdot Aq :: S \cdot R$ Quare

$SAq = RZq - RZA$ vel

$SAq + RZA = RZq$

$Aq + \frac{RZ}{S} \times A = \frac{RZq}{S}$

$\sqrt{u:}\ \frac{Xq}{4} + E : [illegible]\ \frac{X}{2} = A$

$X = \frac{RZ}{S}$

$\frac{Xq}{4} = 1600$

$+ \frac{RZq}{S} = E = 4800$

$\sqrt{6400} = 80$

$-\frac{X}{2} = 40$

Rem $40 = A$

$20 = E = Z - A$

In Rectangulo quadrilatero

Datis { Perimetro $26 = P$; Area $36 = F$ } 2^{re} A Long. E Lat.

Nota q^d Rectanguli area aequalis AE.

perimeter aequalis $2A + 2E$.

Esto Longitudo A

ergo Latitudo $\frac{F}{A}$

dupla Latit. $\frac{2F}{A}$ dupla Longit: $2A$

ergo $\frac{2F}{A} + 2A = P$. vel $\frac{2F}{A} = P - 2A$

$$2F = PA - 2Aq$$

$$\frac{2F}{2} = \frac{P}{2} \times A - Aq$$

$$F = \frac{P}{2} \times A - Aq$$

$$\frac{Z}{2} \pm \frac{Zq}{4} - F = A \quad = E$$

$$\frac{Zq}{4} = \frac{169}{4} - \frac{144}{4} = Æ \quad \text{Rem: } \frac{25}{4}$$

cuius Ra: $\frac{5}{2} + \frac{13}{2} = \frac{Z}{2} = \frac{18}{2} = 9 = A$

$4 = E$

solvendi s^t annuatim Collegio modij aliquot Tritici, et modij aliquot Hordei

primo anno cum esset pretium $\left\{\begin{array}{l}\text{Tritici } 4^s 6^d \text{ vel } 9 = T, \\ \text{Hordei } 2^s 6^d \text{ vel } 5 = m\end{array}\right.$

Soluta s^t pro Toto frumento
$3^{lb}.\ 14^s.$ vel $148 = Z.$

Secundo anno cum esset
pretium $\left\{\begin{array}{l}\text{Tritici } 5^s \text{ vel } 10^d = B \\ \text{Hordei } 3^s 6^d \text{ vel } 7^d = D\end{array}\right.$

Soluta s^t pro Toto frumento
$4^{lb}.\ 8^s.$ vel $176^d = F.$

Q^r numerus modiorum $\left\{\begin{array}{l}\text{Tritici} \\ \text{Hordei.}\end{array}\right.$

sint modij Tritici A. Hordei E

ergo pro Tritico solvitur TA & Hordeo mE

$TA + mE = Z$ vel $mE = Z - TA$

$E = \dfrac{Z - TA}{m}$

2° modij Tritici A: Hordei $\dfrac{Z - TA}{m}$

pro Trit: solvitur BA & Hordeo $\dfrac{DZ - DTA}{m}$

sum: $\dfrac{DZ - DTA + mBA}{m} = F$ vel

$DZ - DTA + mBA = Fm$

$DZ - Fm = DTA - mBA$: sic $\dfrac{DZ - Fm}{DT - mB} = A$

~~[illegible]~~ $A = 12$
$E = 5$

puellis prodeambulantibus, occurrens [B]
puer, salvete inquit vos 12 virgines.
Imo respondit una, si quinquiplice-
mur, tot erimus supra 12 quot
nunc sumus infra 12 quot erant
puellae?

Hinc dati { medio Arithm. $B = 12$
{ Ratio extremorum C { 5 / 1.

Quaer. Extremi { minor $A = 4$
{ maior $AC = 20$.

Erant A.
Med: Arithm: B.
5plicatae CA.
ergo $CA - B = B - A$ vel.
$CA + A = 2B$
$A = \frac{2B}{C+1}$

murus altitudine ad Latitudinem
$\frac{7}{2}$ B longitudine vero ad altitudinem
5 pla D. tot coronatis construendus
est quot perticas het Latitudo
ducta in soliditatem. summa
vero pretij est 980 Z cor: Q.
huius muri Longit.: Lat. Alt.

Esto Latitudo	A	2
Altitudo	BA	7
Longitudo	DBA	35
ergo soliditas	DBq Ac	490
	× A	2
Factus	DBq Aqq = Z	980

$$Aqq = \frac{Z}{DBq}$$

$$B = \frac{7}{2}$$

$$Bq = \frac{49}{4} \times D\,5 = \frac{245}{4}$$

$$\frac{Z}{DBq} \text{ est } \frac{980}{1} \quad \frac{245}{4} = \frac{3920}{245} \ (16$$

ergo $Aqq = 16 : Aq = 4 : A = 2.$

Quæruntur duo numeri quorum alter ad alterum est $\frac{D}{3}$ pluς atq minoris $\frac{1}{4}$ multiplicata in $\frac{1}{5}$ maioris dat 30 $\frac{1}{2}$ vel ponatur $Z = 15$ erunt.

sit minor A	$\sqrt{200}$	10
ergo maior D A	$\sqrt{1800}$	30
minoris $\frac{1}{4}$ B A	$\sqrt{\frac{25}{2}}$	$\frac{5}{2}$
maioris $\frac{1}{5}$ F D A	$\sqrt{72}$	6
ff: B F D Aq = Z	30	15

ergo $Aq = \frac{Z}{BFD}$ } $\frac{1}{4}$ $\frac{1}{5}$ $\frac{3}{1}$ ff: $\frac{3}{20}$ $\frac{30}{1}$ { $200 = Aq$, $\sqrt{200} = A$

Quæruntur duo numeri quorum factus duplus sit $\sqrt{48} = B$ et quadratorum summa sit $7 = Z$

sit primus A	2
quadr: Aq	4
ergo 2um quad Z − Aq	3
ergo 2us $\sqrt{Z - Aq}$	$\sqrt{3}$
1us $\sqrt{Aq}$	$\sqrt{4}$
ff: $\sqrt{Z Aq - Aqq}$	$\sqrt{12}$
duplus ff. $\sqrt{4}$	$\sqrt{4}$

$\frac{Z}{2} \pm \sqrt{u}\, \frac{Zq}{4} - E \left(= \frac{X}{2}\right) = A$, $= E$

Dim: $\frac{7}{2}q$ $\frac{49}{4} - \frac{48}{4}$

Rem $\frac{1}{4}$. $\sqrt{\frac{1}{2}} + \frac{7}{2}$

$\sqrt{4 Z Aq - 4 Aqq} = B$ sunt $4 = Aq$

ergo $4 Z Aq - 4 Aqq = Bq$ $\sqrt{2} = A$

$Z Aq - \frac{4 Aqq}{4}$

$Z Aq - Aqq = \frac{Bq}{4}$

Q.ic 3 nri $A, E, I = z$. tales vt. $z = A + E + I$.

$$AE = \frac{A+E+I}{z} \times B.$$
$$EI = z \times F$$
$$IA = z \times D.$$

$B = \frac{2}{1}$

$f = \frac{10}{3}$

$D = \frac{5}{2}$

esto $B + D = p = \frac{9}{2}$

$$AE = \frac{A+E+I}{z} \times B$$

go $z = \frac{AE}{B}$ hinc deme $A+E$ quae est $\frac{BA+BE}{B}$

hes 3m. $I = \frac{AE - BA - BE}{B}$ multip p prim $\times A$ i.e.

$$\frac{AqE - BAq - BAE}{B} = IA.$$ ff. 1m et 3y

Dividi p D) hes z. $$\frac{AqE - BAq - BAE}{BD} = \frac{AE}{B}$$

B) D $\frac{1}{DB}$

go $AqE - BAq - BAE = DAE$ et deprimt A.

$AE - BA - BE = DE$

$AE - BE - DE = BA$

go $E = \frac{BA}{A - B - D}$ esto $B + D = p$ go $E = \frac{BA}{A - p}$

Quaer. 3 nri tales ut facti {1. et 2di / 2 et 3ij / 3ij et primi} {sit ad summam triu ut} {2 ad 1 = $B \cdot \frac{2}{1}$ / 10 ad 3 = $F \frac{10}{3}$ / 5 ad 2 = $D \frac{5}{2}$}

Iam 1a A

2da $\frac{BA}{A-p}$

$E = \frac{BAq}{A-p}$ divide p B hei $\frac{Aq}{A-p} = Z$

$A + E = A + \frac{BA}{A-p}$ Red: $\frac{Aq - pA + BA}{A-p}$

go $\frac{Aq - Aq + pA - BA}{A-p}$ h. e.

$\frac{pA - BA}{A-p} = Z - A - E = I$

Iam quia $I = \frac{pA - BA}{A-p}$ et $E = \frac{BA}{A-p}$

go $E + I = \frac{pA}{A-p}$

$E = \frac{BA}{A-p}$ et $I = \frac{pA - BA}{A-p}$

go $EI = \frac{BpAq - BqAq}{Aq - 2pA + pq}$

$pA - BA$
BA
$BpAq - BqAq$
$A - p$
$A - p$
$Aq - 2pA + pq$

dividatur ff $\frac{pbAq - bqAq}{fAq - 2fpA + fpq} = \frac{Aq}{A-p} = z$ vt prius.

$$pbAc - bqAc - pqbAq + pbqAq =$$

$$pbA - bqA - pqb + pbq = fAq - 2fpA$$

$$2fpA + pbA - bqA - fAq = fpq + pqb$$

$$\frac{2fpA + pbA - bqA}{f} - Aq = \frac{fpq + pqb}{f}$$

$$\frac{2fp + pb - bq}{f} A - Aq = \frac{fpq + pqb - pbq}{f}$$

$$\sqrt{u.}\ \frac{zq}{4} - E. + \frac{z}{2} = A.$$

$\frac{zq}{4} = \frac{441}{16} - \frac{432}{27}$ quorum rem. $\frac{9}{16}$ $\sqrt{\frac{3}{4}}$

$\sqrt{u.}\ \frac{3}{4}. + \frac{21}{4}$ sive $\frac{24}{4} = 6 = A.$

$$E = \frac{bA}{A-p} = 8.$$

$$I = \frac{pA - bA}{A-p} = 10$$

2o being md acrosse.

$= fAqq - 2fpAC + fpqAq \left\{ \text{vel deprech } \frac{f}{p}Aq \right.$

$+ fpq$

$- pBq$

$- pBq$

vel 2um $A + \dfrac{E}{\dfrac{K}{A}} \times \dfrac{1}{\dfrac{G}{A}} = B.$

$$\text{go } \frac{Aq + K}{A} \times \frac{G}{A} \text{ h.e. } \frac{GAq + GK}{Aq} = B$$

$$\text{vel } GAq + GK = BAq$$

$$GK = BAq - GAq$$

$$\frac{GK}{B - G} = Aq$$

Quaeruntur 3 numeri A, E, I tales ut

$IA + IE = B = 90$

$AE + AI = C = 48$

$EI + EA = D = 84$

sumantur $\frac{B + C - D}{2} = IA = G = 27$

ergo $I = \frac{G}{A}$

$\frac{C + D - B}{2} = AE = K = 21$

ergo $E = \frac{K}{A}$

Quia $\frac{G}{A} + A \times \frac{K}{A} = D$

ergo $\frac{G + Aq}{A} \times \frac{K}{A}$ i.e. $\frac{KG + KAq}{Aq} = D$

vel $KG + KAq = DAq$ et $DAq - KAq = KG$

sic $Aq = \frac{KG}{D - K}$

$E \cdot X :: B^2 \cdot R^3$ and $\frac{XA}{E} = B$. to finde A, E.

R: w: 2.

what 2 numbers are those y^t y^e ration of y^t dxrence betweene y^m to y^e lesser is as $\frac{R}{3}$ to $\frac{S}{2}$ & y^t greater m^d int y^e dreme & y^t product d^o by y^e lesser y^e Quotient shall equall to 30 = B.

Let E be y^e lesser

$S \cdot R :: E \cdot \frac{RE}{S} = X$. go $\frac{RE}{S} + E = A$.

wch red: is $\frac{RE + SE}{S}$ m^d int $\frac{RE}{S}$

$$\frac{RqEq + RSEq}{Sq} = XA$$

$$\frac{RqEq + RSEq}{SqE} = B$$

$$RqEq + RSEq = BSqE$$

$$Rq + RS \times E = BSq.$$

$$E = \frac{BSq}{Rq + RS} = 8.$$

$X = 12$

$A = 20.$

Quia $Zq - B = Z$

et $B = 2Æ$ per additionem erit

$$Zq - B + B = Z + 2Æ$$

quia $Zq - B = Z$

et $B = 2Æ$ per subd: erit

$$Zq - B - B = Z - 2Æ$$

et quia $Zq = Aq$ erit

$$Aq - B + B = Z + 2Æ$$

et $Aq - B - B = Z - 2Æ$

hoc est

Aq in $Aq - 2B = Aq = Xq$ vel

$Aqq - 2BAq = Aq$ vel $Aqq = 2BAq + Aq$

vel $Aqq = 2B + 1 \times Aq$

et $\frac{Aqq}{Aq} =$

$$\frac{Aq}{Aq} = 2B + 1$$

R. n. 2on resolved by Mr Gunter.

Quærantr duo nri quorum $X = Z$ et
$Zq - X = \overset{40}{B}$.

erit $B = 2 E$. et $Zq - B = X$

Summa numerorum quæsitorum ponatr A.

p 14 Cap. 18. Clavis $X + 2E$ in $X - 2E$
$= Xq$ hoc est.

$\frac{Aq}{Zq} - B + B$ in $Aq - B - B = \frac{Aq}{Zq} \frac{}{Xq}$ vel.

$= Aq$. vel.

Aq in $Aq - 2B$

$Aqq - 2B\,Aq = Aq$ vel p depressionem

$Aq = 2B + 1$. sic A invenietr. $9 = Z$

et quia p 14 cap. 18 Clavis $Xq = Zq\,Xq$

erit $\frac{Xq}{Zq} = Xq$. hoc est $\frac{2B+1}{2B+1} = Xq$ sic

X invenietur (1)

Jam ex cognitis summa (9) et differentia (1)
ipsi numeri invenientur. 5. 4.

by 7.e.2. $BDq + BAq = 2\,BD \times BA + bAq$

wherefore by transposition ~~[illegible]~~

$-\,bAq = 2\,BD \times BA - BDq - BAq$

ought

p 82 prob. 3.

$$BCq - BAq = CAq = DCq - DAq$$

$$- BDq + 2\,BD \times BA - BAq$$

$$BCq - BAq = DCq - BDq + 2\,BD \times BA - BAq$$

$$BCq + BDq = DCq + 2\,BD \times BA.$$

3d. el. 2. if $Z = A + E$ then by mu[ltiplying] either side by A : A A

it wille $ZA = Aq + AE$

or by E. it wille $ZE = AE + Eq$.

$$\frac{\frac{CE}{Z} \times \frac{AE}{A}}{} = \frac{AC}{E} \times \frac{AE}{A} + \frac{AEq}{Aq}$$

$CE \times AE = AC \times AE + AEq$ p 3 e 2.

wch is demonstrated by ye scheme above.

oughthred · explayned · &c.

p · 88 · probl: 7 · R · 5 :: AB · AC ·

AB − A is yͤ lesser segmt ·
× AB
$\overline{\text{ABq} - \text{AB} \times \text{A}}$ ·

it ~~shall be~~ ~~AB~~ · AC :: ABq − AB×A · Aq ·

mply yͤ 2 meanes

ABq − AB×A
AC
$\overline{\text{ABq} \times \text{AC} - \text{AB} \times \text{AC} \times \text{A} = \text{AB} \times \text{Aq}}$

ABq × AC − AB × AC × A = AB × Aq dd all by AB

$\frac{\text{ABq} \times \text{AC} - \text{AB} \times \text{AC} \times \text{A}}{\text{AB}}$ = Aq wch red:

AB × AC − AC × A = Aq or

$\frac{\text{AB} \times \text{AC}}{\text{AE}} = \frac{\text{Aq} + \text{AC} \times \text{A}}{\text{Aq} + \text{XA}}$

both yͤ

$\frac{1}{4}$ ACq = ~~Q AE Aq~~ Q · AE
\+ AB × AC = Q : DA · go by 47 · 1 : El: DEq = Q meanes
& DE = Ɑu · = EF p 15 def · 1 · E ·
− $\frac{1}{2}$ AC = AE : leaves AF = A ·

p · 89 Geometrically · for AC × AF + AC × BF = AC × AB
p 2 · 2 El,
\+ p 6 · E 2 CF × AF + AEq = EFq = EDq p 15 D 1
go take away EA comon to yᵐ both so CF × AF = DAq

p 89 prll. 8. quia BC . CA :: CA . $\frac{\frac{BC-BK}{2}}{Cp}$

p 17th ch. 18 Th. 15 corollary 3d.

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ad prll. 9.

Because BC . CA :: BA . pA . æquemultiply

ye 2d & ye 4th by 2: / BC . 2CA :: BA . 2pA .

$Cp = \frac{Bc - BK}{2}$ because ye perpendicular falls in half of the base line by ye diference of ye segments.

p 89 probl: 8

$$Bcq - BK \times BC = 2\,CAq$$
$$Aq - X \times A = Æ$$

---

p 91 probl: 9.

p 7 e 2. $Bfq + 2BA \times Af = ABq + Afq$

go p antith: $Bfq = ABq + Afq - 2BA \times Af$ or

2 CA p 15 D. 1.

soe $Bfq = \overset{CAq}{ABq + Afq} - BA \times 2\,CA$

Bcq (p 47 e 1.) $-\; Bc \times 2\,Ap$. because

{ Bc. CA :: BA. Ap
sim: Tr. p 17 ch 18
Ther 18.

go: $Bfq = Bcq - Bc \times 2Ap$. or

$$Bfq = Bcq - 2Ap \times Bc.$$
$$Æ = Aq - X \times A.$$

---

p 91. probl. 10. by 4 e. 2.

CAq p. 15 def. 1. GA

$$BGq = \frac{BAq + GAq}{Bcq} + \frac{2\,BA \times CA}{2Ap \times Bc}$$ {by 17 ch 18 Ther 18.

$$BGq = Bcq + 2Ap \times Bc$$
$$Æ \quad Aq + XA \times A$$

p 92 probl. 11: because by 17 Ch. 18. Th. 15 Coroll. 3.

$\frac{Bp + Cp}{CB} \cdot CA :: CA \cdot Cp$.

it shall be by 3. ch. 6.

$\frac{Bp}{X} \times \frac{Cp}{A} + \frac{Cpq}{Aq} = \frac{CAq}{E}$ vel $= Cpq + Bp \times Cp$

p 93. geomet: thus. $mf = \sqrt{q}\, \frac{1}{4} Bpq + CAq$

because $pf = CA$ & $mp = mB$.

$mc = mf$ by 15 def. 1. from whence subtracting $mp = \frac{Bp}{2}$ there remaines Cp. ye other segmt sought.

Supra as BG . BK : Be . Bf go alterned
as BK . Bf :: BG . Be .

p 93 probl. 12.

BK is ye X of ye segmts of ye Hypotenuse because if a perpendicular line were let fall from A upon CB it wd fall in ye midst of CK.

BG is ye sum of ye sides ~~[illegible]~~ = BA + AG / AC

Bf is ye X of ye sides for Af = AC p 15 Def. 1.

BG . BK :: BC . Bf   by 17 &c supposing ye semicircle GCf to be made a circle

& BGq . BKq :: BCq . Bfq   for ye squares are in ye same proportions as their sides.

BCq = BAq + CAq by 47 e. 1

divided by 9 ch. 6.
~~[illegible]~~

BGq − BKq . BKq :: BCq − Bfq . Bfq

BGq − BKq . BKq ... ye 1st & 3d termes & equemultiplying

2 BGq − BKq . BKq :: 2 BCq − Bfq . Bfq

2 BCq = 2 BAq + 2 CAq − Bfq

go: alt 2 BGq − BKq . BKq :: 2 BAq + 2 CAq − Bfq . Bfq

= BGq

by ye 8 ch. 18.

BGq + Bfq = 2 BAq + 2 Gaq & by transposition

2 Gaq = 2 CAq

BGq = 2 BAq + 2 CAq − Bfq

go 2 BGq − BKq . BKq :: BGq . Bfq. wherefore

Sq: 2 BGq − BKq . BG :: BK . Bf :: BG . BC.

p 94 proll. 12. go BF ye X of ye sides is found

for as $\frac{BI}{\sqrt{q}\,2BGq - BKq}$. BG :: $\frac{BL}{BK}$. BF thus having found BF. & BG & being given you may easily find BC. by 17 Ch. 18 Theor 16

as BK. BF :: BG. BC.

---

p 94. proll. 13. observe ye former ~~proll.~~ & nothing wilbe difficult in this.

p 96. proll. 13. go ye Z of ye sides is found

for as $\frac{BL}{HI}$. BF :: $\frac{BI}{BK}$. BG.

2ly BK. BG :: BF BC . by 17 Ch. 18 th: 16 alternat.

---

* and $\frac{BK \times BD + BFq}{2BF} = BC$ Take this out of $\frac{BD}{BL}$ by 15 def: e. 1. & there remaynes CL.

$$\frac{2BF \times BD - BK \times BD - BFq}{2BF} = CL = \frac{2BF \cdot CL}{2BF}$$

cast away ye fract by 4 ch. 16.

ere $2BF \times BD - BK \times BD = 2BF \times CL + BFq$

1 / 2	$\frac{2BF - BK}{BD}$	by ye 3d ch. 6	$\frac{2CL + BF}{BF}$	1 / 2

wherefore 3 rest lines being given find a 4th proportionall line by 12. e. 6.

p 96 probl. 14. BF is ye X of ye sides

BK BC & $\frac{CG}{CD}$ by 15 defe 1.

BK ye X of ye segmts of ye base for a

perpendicular lett fall from C upon ye base

BD will fall in ye midst betweene K & D.

CL is ye X betweene ye greater side BC & ye

Base BD for BL = BD p 15 def. e. 1.

Because FB : BK :: BD. $\frac{BK \times BD}{BF}$ p 4. ch. 6. = BG

by 17 Ch. 18 Th. 16. by ye scheame it is

manifest yt BG − BF = FG the halfe

whereof by 15 defe. 1. is FC.

go $\frac{BG - BF}{2}$ = CF but BG = $\frac{BK \times BD}{BF}$ vt supra

from wch substracting BF & reducing it.

$\frac{BK \times BD}{BF}$ − BF it is $\frac{BK \times BD - BFq}{BF}$ =

BG − BF &

$\frac{BK \times BD - BFq}{2\ BF}$ = CF = $\frac{BG - BF}{2}$

to CF. add BF so it will be BC =

$\frac{BK \times BD - BFq}{2\ BF}$ + BF wch reduced is $\frac{2\ BFq}{2\ BF}$

so [illegible] − BFq ballanceing + 1 BFq there is only + BFq *

and B

* wherefore omitting those magnitudes wch ballance one another & are marked by a line drawne under them & transposing others under wch tr ~~is~~ is written ye equation will be.

$$\frac{\underline{BGqq - BGq \times BKq - BGq \times 4CAq}}{BGq - BKq - 4CAq \text{ into } BGq} = \frac{\underline{BGq \times BDq - BKq \times BDq}}{BGq - BKq \text{ into } BDq.}$$

wherefore as $\sqrt{q}$: BGq − BKq. is to $\sqrt{q}$: BGq − BKq − 4CAq :: (say) BG. BD. And as

BG. BD :: BK. BF.

when I mply a number wth $\sqrt{q}$ of a number I am to square ye multiplyer by 11 Defin 4 ch 15.

Q: BGq − BK × BD
BGq − BK × BD

$BGqq - BGq \times BK \times BD$
$\quad - BGq \times BK \times BD + BKq \times BDq$

$BGqq - \dfrac{2BGq \times BK \times BD}{BGq \times 2BK \times BD} + BKq + BDq$

p 96 probl. 15.

BG = sum of ye sides for CG = CD.

BK is ye X of ye segments of ye base for CA ye perpendicular falls in ye midst betweene D.K

And by 5 Ch: 18.

$BDq + BKq = 2\,BK \times BD + DKq$ go antithesin

$DKq = BDq + BKq - 2BK \times BD.$

$+ ADq = DKq$. because ye sq of ye whole line is = to 4 squares of ye halfe lyne

p 47 e. 1. $ADq + ACq = CDq$. & go.

$\underline{4ADq} + \underline{4CAq} = \underline{4CDq}$ because CD is but halfe ye line

$DKq \qquad\qquad FGq$ FG for tis = to FC or CG by 15 def. e. 1.

it shall be

$\underline{BDq + BKq - 2BK \times BD} + 4CAq = FGq$. go

DKq

$FG = \sqrt{q}.\, BDq + BKq - 2BK \times BD + 4CAq$

Take FG out of BG & there remaines BF as is apparent by ye scheme

Qu $BG - \sqrt{q}\, BDq + BKq - 2BK \times BD + 4CAq := BF$

$\times BG$

$BGq - \sqrt{q}\, BGq \times BDq + BGq \times BKq - BGq \times 2BK \times BD + BGq \times 4CAq = \underline{BK \times BD}$

go by 8 ch 16. &. by transposition by 12 ch 15

$Q: \dfrac{BGq - BK \times BD}{BGqq - \dfrac{BGq \times 2BK \times BD}{4BKq + BDq}} = BGq \times BDq + \dfrac{BGq \times BKq - BGq \times 2BK \times BD + BGq \times 4CAq}{4x}$

*

probl: 16. p 100. observe well ye operacions of ye former probleme. & there will no difficulty appeare in this.

probl: 17 p. 101.

by 47: e: 1 ye Cathetus is $\sqrt{q}\ 2BA - Bq$ wch is thus cleered. [by ye 1 [illegible]] The sq. of ye H. less ye sq of ye B. = to ye sq of ye Cath.

$Aq = H.sq.$ $\quad A - B = $ Base

$$\begin{array}{l} A - B \\ \underline{A - B} \\ Aq - BA \\ \underline{\quad - BA + Bq.} \\ Aq - 2BA + Bq = \text{Base sq.} \end{array}$$

wherefore $Aq - Aq + 2BA - Bq = $ Cath. sq.

hoc est. $2BA - Bq = $ Cath. sq.

ergo $\sqrt{\ } 2BA - Bq = $ Cath. [R. & p] $= A - C$

& by 8 Ch. 16: $2BA - Bq = Q: A - C$ hoc est

$2BA - Bq = Aq - 2CA + Cq$ vel

per antithesin $2BA + 2CA - Aq = Bq + Cq$ vel

$\underline{\underline{2B + 2C}} \times \underline{A} - \underline{Aq} = \underline{\underline{Bq + Cq}}$

$Z \qquad\ \times A - Aq = \quad Æ$

ergo $\dfrac{B + C}{} + \sqrt{q}: \underline{2BC} = A$ ye Hypothenuse

$\dfrac{Z}{2} + \sqrt{u}: \frac{1}{4} Zq - Æ:$

$\dfrac{Z}{2}$ sq $= \frac{1}{4} Zq = Bq + 2BC + Cq$

$\qquad\qquad - Bq \qquad - Cq = Æ$

$\sqrt{\ } 2B.C = \sqrt{\ } \frac{1}{4} Zq - Æ$

y^e 18 & 19th prob. I passed over because I understood y^e proposition in Eucl. whereon they depended /

---

* supra.

$\frac{BK - BA}{2BD} = \frac{AK}{2BD}$ draw both sydes into 2BD

$2BD \times BK - 2BD \times BA = 2BD \times AK$

* Ante $AK = \frac{\frac{BC}{BK} \times sv.B}{Rad.}$ draw both sydes into 2BD

sic $2BD \times AK = \frac{2BD \times BC \times sv.B}{Rad.}$

In y^e 2^d Tr. when y^e given ∠B is obtuse

$AK = BK + BA$ & because

$BDq + \frac{BKq}{BCq} = \begin{matrix} 2BD \times \frac{BC}{BK} + KDq \text{ by 5 ch 18} \\ CDq - 2BD \times BA \text{ by 2 ch: 19} \end{matrix}$

erit. $2BD \times BK + KDq = CDq - \frac{2BD \times BA}{Tr.}$

Qre $\frac{2BD \times BK + 2BD \times BA}{2BD \times AK} + KDq = CDq$

Quia ante.

$\frac{BK + BA}{2BD} = \frac{AK}{2BD}$ draw both sides into 2BD

$2BD \times BK + 2BD \times BA = 2BD \times AK$ The remaining part differs not from y^e operation on y^e other side. /

p. 106. probl. 20. for ye cleerer vnderstan-
ding I demonstrate ye 2 Triangles one
after another wch hee doth together.
and first yt Tr: where ye ∠ given B is acute

but by ye schem

As Rad. sv. B. $\frac{BK}{BC}$. AK $\frac{BK \times sv.B}{Rad}$ AK = BK − BA.

and because $\frac{BC}{}$

$BDq + \frac{BKq}{BCq} = \begin{cases} 2\,BD \times BK + KDq & \text{by 5 ch. 18} \\ CDq + 2\,BD \times BA & \text{by 3 ch: 19} \end{cases}$

it shall be.

$2\,BD \times \frac{BK}{BC} + DKq = CDq + 2\,BD \times BA$ Tr.

Q^{re} $2\,BD \times BK - 2\,BD \times BA + DKq = CDq$.

* $2\,BD \times AK$

* $2\,BD \times \frac{BK}{BC} \times \frac{sv.B}{Rad}$

go $\frac{2\,BD \times BC \times sv.B}{Rad} + DKq = CDq$ wch is the first Theor:

againe by transp:

$\frac{2\,BD \times BC \times sv.B}{Rad} = CDq - DKq$ vel

$2\,BD \times BC \times sv.B = CDq - DKq \times Rad$

& so by comon applicam

$sv.B = \frac{CDq - DKq \times Rad}{2\,BD \times BC}$ wch is the 2d Theoreme

ye height of ye pyramyd T is found by compa-
ring of Triangles for ye Tr: c bd is equiaL
to ye Tr: E g C (because by 29.e.1 ye ∠ E = [illegible]
= ∠ b & by ye same ye ∠ c = ∠ d. for EC &
x d are paralell) [illegible] ye Trs c d m, c g n
are equiL (for m & n are right ∠s and ∠ c =
∠ d. by 19.e.1) Q.re $\frac{bd}{A-E} \cdot \frac{EC}{E} :: dc \cdot cg$. but
as $dd \cdot \frac{cm}{L} :: gc \cdot \frac{gn}{T}$

therefor as $\frac{bd}{A-E} \cdot \frac{EC}{E} :: \frac{cm}{L} \cdot \frac{gn}{T}$

* $Z \times$ mlt $\frac{LE}{X}$ maketh ZLE by 1. ch 10

* by ye 3d. e. 2

$ZE = AE + Eq$

for $\frac{Z}{E} = \frac{A}{E} + E$ draw both sides mlt E

$ZE = AE + Eq$

go $Zq + \frac{Xq + 2AE : xL}{Z} = 6$ frusta (by 11. ch. 18)

go $Zq + Z \cdot xL = 6$ fr. [illegible]

[illegible]

p 108 · probl · 21 ·

$\frac{A-E}{X} \cdot E :: L \cdot T$ · go p 3 · ch · 6 · $\frac{LE}{X} = T$

and ye whole heigth is L+T & ye triple of ye whole
pyramis is AqL + AqT (yt is ye base md by ye heigth =
to ye content of a parallelepipedon) But ye triple
of ye pyramis cutt away is EqT. Therefore ye
triple of ye frustum or defective pyramis is AqL
~~pedon~~ + AqT − EqT.

p 109 · mr oughtred varies this Theoreme
only by ye equaon of spees.

Ante.
AqT − EqT + AqL = to 3 frustum

$\overline{AqT - EqT}$

$\overline{Aq - Eq} \times T$

p 2 ch 11 · $\overline{Zx} \times \frac{LE}{X}$

ZEL

$AEL + EqL$

2de. $\overline{AEL + EqL + AqL} = 3$ frustum of ye pyramis

$\overline{AE + Eq + Aq} \times L$

by ye last operaon. draw both sides into 2.

$\frac{Aq}{2} + Eq + AE : \times L = \frac{3}{2}$ fr.

$2Aq + 2Eq + 2AE : \times L = 6$ frustum.

p 2 ch 11. $\overline{2Aq + 2Eq}$

$Zq + Xq$

go

Quæstiões lib. 1 Dioph. Alexandrini

1) Dati Z & X, quærere ipsos nros.

2) Dati Z & raōe R ad S quærere &c.

$R \cdot S :: A \cdot \frac{SA}{R} = E$ ergo $A + \frac{SA}{R} = Z$ &

$\frac{RA + SA}{R} = Z$ · & · $RA + SA = ZR$

Quare $A = \frac{ZR}{R+S}$.

3) Dati Z & raōe R ad S qua et insup magni-
tudine B maior superat minorem.

$R \cdot S :: A - B \cdot \frac{SA - SB}{R} = E$ adde B A rō:

$\frac{RA + SA - BS}{R} = Z$

$RA + SA - BS = ZR$ vel. $RA + SA = ZR + BS$

Sic $A = \frac{ZR + BS}{R+S}$.

Q°. 1ª.

$\overset{100}{Z}$ $\overset{40}{X}$ 2tr. A & E.

Q: 2ª.

Datum Nrum in duos partiemur quorum sit qug petitur rao. Sit Nrus 60 dividendus in duos in rao tripla.

A
3A
$$4A = 60 \therefore \text{go } A = \frac{60}{4} = 15$$
$$\& \ 3A = 45.$$

Q°. 3ª.

Propositum Nrum in duos dividere, qui et datam raoem teneant, et quantum petitur intervallo distent. Esto Nrus 80 rao ptuon 3pla, intervallum 4 quo maior triplum minoris superat.

A
3A + 4
$$4A + 4 = 80$$
$$- 4$$
$$4A = 76 \therefore \text{go } A = \frac{76}{4} = 19:$$
$$\& \ 3A + 4 = 61:$$

4) Datis X & ratione R·S invenire &c

sit A maior quae: R·S :: A·$\frac{SA}{R}$ = E minor.

Quare $\frac{RA-SA}{R}$ = X vel RA − SA = XR

& $A = \frac{XR}{R-S}$.

~~& $\frac{1}{2}$~~

5) Datis Z & B aggregatum $\frac{1}{3}$ maioris & $\frac{1}{5}$ minoris.

Esto maior A; minor Z − A

$\frac{5A+3Z-3A}{15}$ — $\frac{A}{3} + \frac{Z-A}{5}$ = B. vel red:

$\frac{3Z+2A}{15} = B$ vel 3Z + 2A = 15B.

$A = \frac{15B - 3Z}{2}$.

vel Esto $\frac{1}{3}$ maioris A: $\frac{1}{5}$ minoris B − A

Quare 3A + 5B − 5A vel 5B − 2A = Z

Sic $A = \frac{5B - Z}{2}$

Q: 4ª.

Duos Nros invenire in ratione data dato etiam intervallo. mandatum sit ut maiorem minoris quincuplum, eoque etiam viginti unitatibus maiorem constituamus.

sit minor A
ergo maior erit $5A$. intervallum numerorum esse debuit 20 at est $4A$. ergo $4A = 20$
& $A = \frac{20}{4} = 5$.

Q. 5.

Dividatur 100 in duos Nros ea lege, ut prioris triens cum posterioris 5ª parte si coniungatur 30 fiant.

A.
$Z - A$.

$$\frac{A}{3} + \frac{Z - A}{5} = 30$$

(above: $5A$, $3Z - 3A$; denominator 15)

ergo $\frac{2A + 3Z}{15} = \frac{30}{15}$

$2A + 3Z = 450$ & $2A = 450 - 3Z$

ergo $A = \frac{150}{2} = 75$ & $E = 25$

6) Datis Z & B excessus ($\frac{1}{2}$) $\frac{1}{4}$ maioris supra ($\frac{1}{3}$) $\frac{1}{6}$ minoris.

Esto maior A: minor $Z - A$

$3A$

go $\frac{A}{4}$ ē 4^{ta} maioris $\frac{2Z - 2A}{\frac{Z - A}{6}}$ 6^a minoris wch red: & subst- from ye $\frac{1}{4}$ of ye greater ye Rem = B.

2

3 2

$\overline{\quad 12 \quad}$

$3A - 2Z + 2A$ · i.e.

$\frac{5A - 2Z}{12} = B$. vel $5A - 2Z = 12B$.

& $A = \frac{12B + 2Z}{5}$.

vel esto $\frac{1}{4}$ maioris A: $\frac{1}{6}$ minoris $A - B$.

go maior. $4A$: minor $6A - 6B$. wch added

$10A - 6B = Z$. & $A = \frac{Z + 6B}{10}$.

---

7) Quis numerus ē e, quo si tollatur B & C, reliquus maior erit (2plus) triplus minoris.

Esto numerus quæsitus A: et B ⊏ C: i.e. B ye greater C ye lesser.

A. $A - B$.

$A - C$

$3A - 3B = A - C$. sive $A = \frac{3B - C}{2}$.

Dioph: Lib: 1.

Q. 6.ª

partiamur 100 in duos Nros, ita ut primi quadrans posterioris sextantem 20 unitatibus superet.

A.
Z − A.

$$\frac{A}{4} = \frac{Z - A}{6} + 120 \quad \text{multiplied across}$$

$$6A = 4Z - 4A + 480$$
$$+4A$$

$$10A = 4Z + 480 = 880$$

$$\text{so } A = \frac{880}{10} = 88. \quad \& \ E = 12$$

Q. 7ª.

Invenire Nrum, a quo si auferantur duo dati numeri, residua eam servent, quae proponitur rationem. Jubemur ab eodem nro auferre 100, & 20, ut maius residuum minoris sit triplum.

Esto is Nrus A a quo si auferam 100 residuum est A − 100: si 20 restat A − 20 & cum residuum maius minoris sit triplum, hoc ter sumptum maiori erit aequale ergo

$$3A - 300 = A - 20$$
$$-A \qquad\qquad +300$$

$$2A = 280 \quad \& \ A = \frac{280}{2} = 140$$

vide Q. 9m.

8) Quis n[ume]r[u]s e[st] cui si addatur B & C
aggregatus maior erit 3[plum] (2plum) minoris
esto n[ume]r[u]s quaesitus A: & B ⊏ C

$A + B.$
$A + C.$ g°: $3A + 3C = A + B.$

fie. $A = \frac{B - 3C}{2.}$

9) Quis n[ume]r[u]s e[st] quo sublato e B & C,
reliquus maior 6[plum] (5plum) sit minoris:
esto n[ume]r[u]s quaesitus A: & B ⊏ C

$B - A$
$C - A$: $6C - 6A = B - A$

fo $A = \frac{6.C - B}{5.}$

Q: 8ª

Datis duobus nris, alium invenire, qui si utriq datorum adijciatur, collecti eam habeant, quæ ponitur, raoem. Hanc vero minorem esse optet ipsa datorum numerorum raoe. Sit ad 100 & ad 20 adijciendus numerus, ea lege ut maius collectu minoris sit triplum.

ponatur is ēē A. qui ad 100 additus facit A + 100 : ad 20 : A + 20 Cumq maior summa minoris ēē debeat 3pla, hæc ter sumpta maiorem æqualit ergo.

$$3A + 60 = A \pm \begin{smallmatrix}100 \\ -60\end{smallmatrix}$$
$$-A$$

$$2A = 40 \text{ go } A = \frac{40}{2} = 20$$

20 ad 100 fiunt 120. ad 20, 40.
Est atm 120 triplum numeri 40.

Q: 9 — vide Q. 7m.

A datis duobus nris eundem auferre, ita ut residuorum sit, qm quis imperarit raō. maiorem tn eam ēē optet raoe datorum numerorum maioris ad minorem. Sit a 100, & a 20 auferendus idem nrus, ita ut residuum maius minoris sit sescuplum

$$A. \quad 100 - A$$
$$\quad 20 - A$$

$$\text{go } 120 - 6A = 100 - A$$
$$-100 \qquad\qquad +6A$$

$$20 = 5A \ \& \ A = \frac{20}{5} = 4$$

10) Quis n[ume]rus [est], qui si tollatur e B.
& cui si addatur C, maior erit 4[plus] (duplus) dupplus minoris.
Esto n[ume]rus q[uae]situs A: & B = C &c.

11) Quis n[ume]rus [est] cui si addatur C & ex quo
si tollatur B maior erit 3 plus minoris.
Esto n[ume]rus quaesitus A: & B = C. &c.

hic semp[er] is cui additum est,
maior habetur.

Q. 10.

Datis duobus nris, eundem tertium maiori adimere, & minori addere, ut residui ad collectum sit quae ponitur rao. sit idem. Nrus ad 20 addendus, & de 100 subtrahendus, ut maius minoris sit quadruplum.

Nrus iste sit A. quo ad 20 addito fiunt $A + 20$. a 100 detracto $100 - A$. et cum maius minoris sit quadruplum minus quater sumptum maiori aequabitur

go $400 - 4A = A + 20$.
$-20 \qquad\quad +4A$

$380 = 5A$. & $A = \frac{380}{5} = 76$.

qui ad 20 adiectus 96 facit: de 100 substractus, 24 relinquit, manetque summa residui quadrupla.

Q. 11

Eidem nro duos alios, alterum addere alterum detrahere, ut collecti et residui sit quae ponitur rao. Addam eidem Nro 20 & detraham 100. ut collectum sit residui triplum.

sit Nrus quaesitus A huic si addas 20 adimas 100 fiunt $A + 20$ & $A - 100$

go. $A + 20 = 3A - 300$
$+300 \quad -A$

$320 = 2A$. & $A \frac{320}{2} = 160$
$+20$

ac eidem apposita maior 180 minor 60. maior minoris triplus.

12) Divide Z in $A + E$, et in $I + O$: si
ut $A = 2 \cdot O$ & $I = 3E$. Esto maior
A: minor $Z - A$ erunt duo reliqui
$\frac{1}{2}A$, & $3Z - 3A$. invenietur $A = \frac{4Z}{5}$

$\frac{A}{2} + 3Z - 3A = Z$. vel red &c.

$A + 6Z - 6A$ vel

$6Z - 5A = 2Z$

-2

$\frac{4Z}{5} = A$

Datum numerum in duos dividere bis: ita ut unus e priore divisione cremeentum, cum uno ex altera crementum rationem quae requiritur constituat. Iniunctum sit nobis 100 dividere in duos numeros, rursusque eundem in alios duos: ita ut maior pars divisionis, duplus sit ad minorem posterioris: ac vicissim maior e posteriore divisione, triplus ad minorem prioris.

Esto minor posterioris partitionis A. ergo maior prioris $2A$ ac proinde huius minor $100 - 2A$. Cuius cum sit 3plus qui est in posteriore partitione maior: is erit $300-6A$ superest, ut huius quoque partitionis numeri (viz: $300 - 6A$ & A) 100 faciant collecti

$$300 - 5A = 100$$
$$-100$$

$200 = 5A$. Ergo $A = \frac{200}{5} = 40$. Jam persequamur praescriptum maior prioris partitionis est $2A = 80$ ergo eiusdem altera pars 20 scil: $100 - 2A$. maior posterioris $300 - 6A$, nimirum 60. minor A i.e: 40 & evidens est quaesiti comonstratio.

1: $2A$: $100 - 2A$ 1: 80: 20

2: $300 - 6A$: A.   2 60: 40.

13) Divide Z in $A + E$, & in $I + O$, & in $V + Y$: sic ut $A = 3 \cdot O$: et $I = 2Y$ & $V = 4E$.

Est maior A minor $Z - A$: $4Z - 4A = V$

$\frac{1}{3}A = O$: $Z - \frac{1}{3}A = I = 2Y$: $\frac{1}{2}Z - \frac{1}{6}A = Y$

$\frac{1}{2}Z + \frac{1}{6}A = V$

Quare $4Z - 4A = \frac{1}{2}Z + \frac{1}{6}A$: vel $\frac{21}{25}Z = A$.

Cum autem maior 1ª partitionis sit $300 - 6A$: quomodo minor eiusdem fiat $6A - 200$, hinc sciri potest. cum ambos esse simul 100 oporteat.

Ter dividemus unum propositum in duos nros: ita ut unus primae partitionis ad unum 2dae rationem quae praescribitur habeat: reliquus 2dae ad unum 3tiae, & reliquus 3tiae ad reliquum 1ae. eam habeant vicissim, quae postulabitur seorsum, rationem. Partiamur 100 in duos nros ter, ut maior 1ae partitionis sit 3plus ad minorem 2dae: maior 2dae ad minorem 3ae duplus. deniq maior 3ae ad minorem 1ae quadruplus

ponamus minorem partitionis 3ae. A erit maior 2ae. 2A. & quoniam cum minore conficit 100, erit minor 100-2A cuius 3plus cum sit maior 1ae: is erit 300-6A ergo minor 1ae erit 6A-200 cuius quadruplus cum sit maior 3ae, erit is 24A-800. Reliquum est, etiam 3ae partitionis membra coniuncta facere 100

1: 300-6A: 6A-200

2. 2A· 100-2A

3: 24A-800: A.

ergo: 24A-800+A = 100 per transpositionem

25A = 900 ergo A = $\frac{900}{25}$ = 36

Examinemus posita. minor 3ae Divisionis est 36 maior 64 minor 1ae 16. maior 84. minor 2ae 28: maior 72. & manifestum est hos satisfacere proposito.

1: 84: 16

2: 72: 28

3: 64: :36

14) invenire duos numeros (A, E) sic ut $AE = 3A + 3E$. Q.re $AE - 3A = 3E$ vel $AE - 3E = 3A$ sumatur igitur pro E vel A numerus aliquis qui maior sil qm 3.

Dioph. Lib. 1. 2. 14.

Inveniantur duo n̄n, quorum m̄tiplex unius in alterum, faciat n̄um cuius ad summam ipsorum sit quæ postulatur rão. oportet autem id quod ponitur ex multitudine unitatum unius numerorum, maius esse n̄ro a quo rão postulata nomen suum habet.

Mandatum sit facienti rãem ad summam debere esse 3plam. ponatur numerorum alter A alter (ut addita quæstioni conditio præcipit) maior quam 3. puta 12 m̄ptio A x 12 facit 12A. addito summam A + 12 & cum huius triplum sit 12 A

ergo $3A + 36 = 12A$
$\quad\quad\quad\quad\quad\quad -3A$

$36 = 9A$. ergo $A = \frac{36}{9} = 4$

proinde 4 & 12 n̄n sunt, qui quæstioni satisfaciunt.

15) invenire duos nros (A. E) sic ut
$2A - 2B = E + B$: et $3E - 3C = A + C$.
erit $2A - 3B = E$: et $6A - 9B - 3C = A + C$
quare $A = \frac{4C + 9B}{5}$.

---

ye opaon at length. putt E for ye
first A for ye 2d Number $B = 30$: $C = 50$.
$E + B = 2A - 2B$: $E = 2A - 3B$.
$A + C = 3E - 3C$: Now because $2A - 3B = E$
go $6A - 9B = 3E$ & $6A - 9B - 3C = A + C$
& $A = \frac{4C + 9B}{5}$ ut supra.

Dioph Lib 1. Q. 15.

Duos invenire nros, vt si vterq ab altero certum numerum accipiat, collecti vtrinq ad residuum sit ea, quæ ponitur, rao.

Postuletur vt prior acceptis a posteriore 30, duplus sit ad id qd huic relinquitur. posterior atm acceptis a priore 50, triplus sit eius qd huic superest.

ye former is A. & having borrowd 30 of ye later is A + 30 wch because it is double to the Rem: of ye later having lent 30 therefore ye Rem is $\frac{A+30}{2}$ & ye summe at first was

$\frac{A+30}{2} + 30$ whereunto adding + 50 wch hee borrowed of ye former & being reduced is $\frac{A+190}{2}$

& ye former having lent 50 is A − 50

so according to ye Qun $3A - 150 = \frac{A+190}{2}$ or

$$6A - 300 = A + 190$$
$$-A \qquad\quad +300$$

$5A = 490$ so $A = \frac{490}{5} = 98$.

& ye other number is 94

$$\begin{array}{r} 98 \\ +30 \\ \hline 128 \end{array}$$ is double to 64

$$\begin{array}{r} 94 \\ +50 \\ \hline 144 \end{array}$$ is triple to 48.

16) invenire tres nros (A, E, I) sic ut A + E = B; & E + I = C: et I + A = D Erit E = B − A: et B − A + I = C, vel I = C + A − B: et C − B + 2A = D, vel $A = \frac{B + D - C}{2}$ vel esto suma omn Z ut in 17.

{ 16 item }

habent quinq socij sumam denariorum A B C D E ita ut.

a suma 48 aufer	A·B·C·D habeant	40	restat	E =	8
	B C D E	43		A =	5
	C D E A	38		B =	10
	D E A B	39		C =	9
	E A B C	32		D =	16
					48.

$4A + 4B + 4C + 4D + 4E = 192$

$A + B + C + D + E = 48$

go $A + B + C + D = 40$

$-A - B - C - D$

go $E = 8$ & so find ye rest.

16 b.

Aliter 5 sunt nri A B C D E Juncti

a suma 48 aufer	A·B·C· faciunt	24	restat	DE =	24
	B C D	35		AE =	13
	C D E	33		AB =	15
	D E A	29		BC =	19
	E A B	23		CD =	25

Queritur idem ꝑ ante

$3A + 3B + 3C + 3D + 3E = 144$

go $A + B + C + D + E = 48$.

Dioph. Lib 1 Q. 16.

Inveniantur tres Numeri, ita ut bini faciant eos quos posceris numeros. oportet autem summa eorum qui poscuntur semissem quovis trium istorum esse maiorem. Conficiant ergo 1.s et 2dus 20. 2dus & 3tius 30. tertius cum 1°. 40.

put α for ye summe because it is unknowne.

1 2 3.
A E J

$A + E = 20 = B$
$E + J = 30 = C$
$A + J = 40. = D$

$2A + 2E + 2J = 90$

$\alpha - B = I$
$\alpha - C = A$
$\alpha - D = E$
$3\alpha - B - C - D = \alpha$
$3\alpha - F = \alpha$: ※

90 $A + E + J = 45$
$- A \quad - E = 20$

$J = 25.$
& $A = 15$
$E = 5$
45.

※ $3\alpha - F - \alpha$.
soe $\alpha = \frac{F}{2} = 45$:
wherefore $\alpha - B = I$ & sic de cæteris.

then from $ABC = 24$ & in like manner ye rest
subst $AB = 15$

Rem $C = 9$
$B = 10$
$D = 16$
$E = 8$
$A = 5$
48

17) Invenire 4or nros (A, E, I, O) sic ut

$$A+E+I=B$$
$$E+I+O=C$$
$$I+O+A=D$$
$$O+A+E=F$$

$O = C - E - I$
$\quad B - A - E$ Qre
$O = C - E - B + A + E$

2d. $E = C - I - O$
$\quad$ p 3m. $D - A - O$
$E = C - D + A + O - O$

erit: $I = B - A - E$
& $O = C - B + A$
et $E = C - D + A$

& $C - B + A = O$
$+A = A$
$+C - D + A = E$ } F

$2C - B - D + 3A = F$

vel $A = \dfrac{B + D + F - 2C}{3}$

vel esto summa omn. Z
erit. $O = Z - B$
$A = Z - C$
$E = Z - D$
$I = Z - F$

Qre $Z = 4Z - B - C - D - F$

vel $Z = \dfrac{B + C + D + F}{3}$

18) Invenire tres nros A, E, I, sic ut $A + E = I + B$. et $E + I = A + C$ et $I + A = E + D$ erit $A + E - B = I = E + D - A$ Quare $A = \dfrac{D + B}{2}$. $E = \dfrac{B + C}{2}$, $I = \dfrac{D + C}{2}$.

or you may worke it by ye summe ~~[illegible]~~ ~~[illegible]~~ ... Qre $Z = I, A, E, = \dfrac{3Z - B - C - D}{2}$

$I = \dfrac{Z - B}{2}$ Qre

$A = \dfrac{Z - C}{2}$ et $Z = B + C + D$.

$E = \dfrac{Z - D}{2}$ (19) eadem quae 18.

Dioph. Lib. 1 Q. 17.

Quatuor nros invenire, quorum trini coniuncti conficiant quos quis postulaverit nros: dummodo istorum quatuor numerorum trium quovis ipsorum sit maior. Statutum sit ordine iis expositi A B C D (1, 2, 3, 4) primum & duos deinceps, 20 confluere: secundum et duos deinceps, 22. tertium & duos deinceps 24. Quartum & duos deinceps 27

a summa 31 aufer.

A B C = D = 20	restat	D =	11
B C D = C = 22		A =	9
C D A = B = 24		B =	7
D A B = A = 27		C =	4
			31.

$3A \cdot 3B \cdot 3C \cdot 3D = 93$

$g^o\ A + B + C + D = 31$

Q 18

Tres Nri sunt inveniendi, quorum bini iuncti superent tertium quantum postulatur nro: superent 1s & 2dus 3m nro 20. 2dus & 3tius 1m 30. 3us & 1s 2dm 40.

30	25	35
A	E	J
1	2	3

$A + E = J + 20$ $g^o\ 2J + 20 = 90 = A + E + J.$

$E + J = A + 30$ $\&\ J = \frac{70}{2} = 35$

$A + J = E + 40$ $g^o\ 2E + 40 = 90 = A + E + J$

$2A + 2E + 2J = J + A + E + 90$ $E = \frac{50}{2} = 25$

$-A - E - J$

$A + E + J = 90.$

lastly subtr. from 90

$J + E = 60$

Rem $A = 30$

Q 19 is but ye same Q. wrought after another manner.

20/ Invenire quatuor nros A, E, I, O,
sic ut $A, + E, + I = O + B$:
et $E, + I, + O, = A + C$:
et $I, + O, + A = E + D$:
et $O, + A, + E, = I + F$
Est suma omnium Z. erit.
$Z - B = 2, O$
et $Z - C = 2A$
et $Z - D = 2E$
et $Z - F = 2, I$:
2^{e} $4, Z - B - C - D - F = 2 \cdot Z$ vel
$$Z = \frac{B + C + D + F}{2}$$

Dioph: Lib 1 Q 20.

Quatuor nri sunt inveniendi, quorum terni iuncti reliquum superent eo qui requiritur nro. Oportet autem datorum quatuor numerorum intervalla habere semissem, maiorem quovis ipsorum numerorum. postuletur, vt 1^{mi}, 2^{di}, ac 3^{tij} summa quartum excedat nro 20. 2^{di}, 3^{tij}, ac 4^{ti}, primum 30. 3^{tij}, 4^{ti}, ac 1^{mi}, 2^{dm} 40. Quarti, 1^{mi} ac 2^{di}, 3^{m} 50.

$$\overset{1}{A}\quad \overset{2}{E}\quad \overset{3}{J}\quad \overset{4}{O}$$

$A + E + J = O + 20$: go $2O + 20 = 70 = AEJO$ & $O = \frac{50}{2} = 25$

$E + J + O = A + 30$ go $2A + 30 = 70 = AEJO$ & $A = \frac{40}{2} = 20$

$J + O + A = E + 40$ go $2E + 40 = 70 = AEJO$ & $E = \frac{30}{2} = 15$

$O + A + E = J + 50$ lastly sum 70, subst $AEO = 60$, Rem J 10

$$3A + 3E + 3J + 3O = A + E + J + O + 140$$
$$-A - E - J - O$$
$$2A + 2E + 2J + 2O = 140$$
$$A + E + J + O = 70$$

Q. 21 ye same wth ye 20th but wrought after another manner

22 Divide Z in $A, + E, + I$: sic vt $A + E = BI$: et $E + I = CA$ erit
$BI + I = Z = CA + A$ quare

$$\frac{Z}{B+1} = I \quad \text{et} \quad \frac{Z}{C+1} = A.$$

Quia enim $A + E = BI$ ergo $E = BI - A$
$\qquad$ et $+ A$
$\qquad$ et $+ I$

ergo $BI + I = Z$

Et quia $E + I = CA$
ergo $E = CA - I$
$\qquad + I$
$\qquad + A$

ergo $CA + A = Z$. vt supra.

* oportet autem medium tanta parte maximi, præstare minimo, vt numero qui eam partem denominat in minimo multiplicato, id quo medius minimo præstat multiplicato, multitudo quam in maior numerorum existat multitudo quam minorem medio. sicut in exemplo posito. medij super minorem excessus est 15. cuius triplum 45 plus quam 37|5

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23 Invenire tres numeros A, E, I, sic vt $A - \frac{1}{3}I = E$ et $E - \frac{1}{5}A = I$ et $I - \frac{1}{4}E = B$.

Erit $3A - 3E = I$ by reducing & transposing ye 1st number wch being = to $E - \frac{1}{5}A = I$. by working you shall find $\frac{4}{5}A = E$ & $\frac{5}{4}E = A$

Quare $3A - \frac{12A}{5}$ hoc est $\frac{3}{5}A = I$ $\quad$ ($I = 15$

$\qquad\qquad \overline{3E}$

Being $\frac{3}{5}A (= I) - \frac{1}{5}A (= \frac{1}{4}E)$ hoc est $\frac{2}{5}A = B = 10$

so $A = 25$, $E = 20$

Dioph Lib 1: Q 22.

propositum nrum in tres alios partiri: ut uterque extremorum adiuncto medio, ad reliquum extremum habeat quæ postulatur rationem. Partiamur 100 in tres numeros ut 1s cum 2do 3tij 3plum, tertius cum 2do primi 4druplum constituant.

A is ye 3d so ye 1st & 2d are 3A. wch added together are $4A = 100$ so $A = 25$ now because ye 3d & 2d are 4druple to ye first. therefore ye 1st is $\frac{1}{5}$ of $4A = 20$ wch substracted from 3A leaves 55 = to ye 2d.

Q 23

Inveniantur tres nri, quorum maximus medium excedat, minimi certa aliqua pte: medius minorem, maximi data pte: minimus datam medij ptem certo aliquo numero.*

Constitutum sit maximum medio præstare triente minimi: medium minimo maximi triente: minimum denario præstare trienti medij.

statuatur minimus $A + 10$ quo scilicet nro medij trientem excedit so medius erit 3A. Restat, ut minimum medius supet triente maximi. supat autem eum $2A - 10$ qtitate. hic ergo est maximi triens, & ipse maximus $6A - 30$. oportet autem maximum medio præstare triente minimi. at quo ei præstat, est $3A - 30$ atq hoc esse debet triens minimi: ergo minimus est $9A - 90$ idemq erat $A + 10$.

sic $9A - 90 = A + 10$

$\quad -A \qquad +90$

$8A = 100$ & $A = \frac{100}{8} = 12|5$ so minimus est 22|5

maximus 45 medius 37|5

23/ Dropk his qon resolved, for yt on ye backside of ye former leafe is mr. O:

To find A, E, I. So yt.

$A - \frac{1}{3} I = E$ } observe ye former
$E - \frac{1}{3} A = I$ } opaon. So $3A - 3E = I =$
$I - \frac{1}{3} E = B$ } $\frac{3E - A}{3}$ Quare

$\frac{5}{6} A = E$ & $\frac{6}{5} E = A$.

Wherefore $3A - \frac{15A}{6}$ yt is $\frac{1}{2} A = I$

$3E$

Lastly $\frac{1}{2} A - \frac{5}{18} A$ yt is $\frac{2}{9} A = B = 10$ by positi on.

I $\frac{1}{3} E$

So $A = 45$
$E = 37 \cdot \frac{1}{2}$
$I = 22 \cdot \frac{1}{2}$

24/ eadem quae 23. $8E = 6B$. Qre hon

Dioph: Lib. 1 Q. 24. eodem cum superiore hoc redit.

Q. 25.

invenire tres nros A, E, I, sic ut

$\frac{2}{3}A + \frac{1}{5}E = \frac{4}{5}E + \frac{1}{4}I = \frac{3}{4}I + \frac{1}{3}A.$

Resolvuntur tres nri in A iuxta conditionem Quaestionis: eruntque A. et $\frac{5}{6}A = E$ et $\frac{2}{3}A = I$. sumatur igitur pro A nrus quivis qui dividuus est per Denominatores reliquorum 6 & 3 et fiet propositum. Esto A. 6. erit E. 5. et I. 4. &c.

Red: ym to ye same Denomination & so.

$40{:}A + 12{:}E = 48{:}E + 15{:}I = 45{:}I + 20A$

60. wch Denominator is to be neglected in working.

by comparing ye 1st & 2d

$40A = 36E + 15I.$

$\frac{1080I + 720A}{48}$

by comparing ye 2d & ye 3d

$E = \frac{30I + 20A}{48}$

so $36E = \frac{1080I + 720A}{48}$

$40A = \frac{1080I + 720A}{48} + 15I.$ $\frac{720I}{}$ Red & added &c.

$40A = \frac{1800I + 720A}{48}$ or

$1920A = 1800I + 720A.$ by transposition

-720

$1200A = 1800I.$ i.e. by reducing to ye least terms

$2A = 3I$ so $\frac{2A}{3} = I$ ut supra

pb 26.

Invenire quatuor nros A, E, I, O · sic ut

$$\frac{1}{3}A + \frac{3}{4}E = \frac{1}{4}E + \frac{4}{5}I = \frac{1}{5}I + \frac{5}{6}\omega = \frac{1}{6}\omega + \frac{2}{3}A$$

resolvuntur quatuor nn in A iuxta conditionem quaestionis: eruntque A, et $\frac{46}{75}A = E$, et $\frac{4}{5}A = I$ et $\frac{19}{25}A = \omega$

Sumatur igitur pro A nrus quivis qui dividuus est per denominatores reliquorum 75 · 25 · 5. et fiet propositum sexto A 75. erit E · 46 · et I · 60 et ω 57 ·

Reduce ym to ye same Denominaon, as

$$20A + 45E = 15E + 48I = 12I + 50\omega = 10\omega + 40A$$

then by comparing ye 1st & 2d.

$$I = \frac{20A + 30E}{48}$$

$$E = \frac{48I - 20A}{30}$$

by comparing ye 1st & 4th / ye 2d & 3d

$$\frac{45E - 20A}{10} = \omega = \frac{15E + 36I}{50}$$

10 5

1

$$225E - 100A = 15E + 36I$$

vide ye backside of ye following leafe.

$$9000E = 5520A$$

againe by comparing ye 2d & ye 3d.

$$I = \frac{20A + 12E}{45}$$

go $15 \cdot I = \frac{300A + 180E}{45}$ · before

$$40A = 36E + 15I$$

$$\frac{300A + 180E}{45}$$

go $40A = 36E + \frac{300A + 180E}{45}$ Reduce & add ye 36E

so $40A = \frac{1800E + 300A}{45}$ vel

$$1800A = 1800E + 300A$$

$$-300A$$

$1500A = 1800E$ Reduced to ye least termes

so $5A = 6E$ and $\frac{5A}{6} = E$ · vt supra.

vel $\frac{5520}{9000}A = E$ wch red. to ye least termes by 120 ye greatest comon div. is $\frac{46A}{75} = E$

againe because as above.

$$20A + 30E = 48 \cdot I$$

$$\frac{1380A}{75}$$

go $\frac{2880A}{75} = 48 \cdot I$ vel $2880A = 3600 \cdot I$

$\frac{2880A}{3600} = I$ wch red by 720) $\frac{4A}{5} = I$

againe as above

$45 E - 20 A = 10, \omega$

$\frac{2070 A}{75}$

go $\frac{2070 A - 1500 A}{75}$ (h.e) $\frac{570 A}{75} = 10, \omega$.

$570 A = 750 \omega$

$\frac{570}{750} A = \omega$ wch red by (30) $\frac{19 A}{25} = \omega$.

This amends ye opacon of ye 26th Qon

$225 E - 100 A = 15 E + 36 I$ vel.

-15

$210 E = 36 I + 100 A$.

$\frac{720 A + 1080 E}{48}$ Rd. 8s added 30

$10080 E = 5520 A + 1080 E$

-1080

$9000 E = 5520 A$.

27 Qq: lib 1. Dioph.

invenire tres nros A, E, I, sic ut $A + \frac{1}{3}E + \frac{1}{3}I$
$= E + \frac{1}{4}I + \frac{1}{4}A = I + \frac{1}{5}A + \frac{1}{5}E$. resolvantur
tres nri in A iuxta conditionem quæstionis
eruntq A, et $\frac{17}{13}A = E$ et $\frac{19}{13} = I$. sumatur
igitur pro A nrus quivis qui dividuus est
per denominatores reliquorum 13 et 13 et
fiet propositum. esto A. 13. erit E. 17 et
I. 19. Reduce them to ye same denominator

$60A + 20E + 20I = 60E + 15I + 15A = 60I + 12A + 12E$

then by comparing ye 1st & ye 2d &c.

$45A + 5I = 40E$ ~~[illegible]~~

$\text{go } 5I = \frac{40E - 45A}{5}$

and likewise by comparing ye 1st & ye 3d.

$48A + 8E = 40I \quad \text{go } I = \frac{48A + 8E}{40}$

$\text{go } 5I = \frac{240A + 40E}{40}$

supra.

$40E = 45A + \frac{5I}{\frac{240A + 40E}{40}}$ (he) $6A + E$

$\text{go } 40E = 51A + E$

$\text{and } 39E = 51A \text{ go } \frac{51A}{39}$ wch red by 3. is $\frac{17A}{13} = E$

supra $5.I = 40E - 45A$ wch red. $\text{go } 40E = \frac{680A}{13}$

$\frac{680A}{13}$ es subtr:

$5.I = \frac{95A}{13}$ vel $65.I = 95A$ or $I = \frac{95A}{65}$ wch red by 5. so $I = \frac{19A}{13}$

28 pp.

invenire 4or nros A, E, I, ω, sic ut

$$A+\tfrac{1}{3}E+\tfrac{1}{3}I+\tfrac{1}{3}\omega = E+\tfrac{1}{4}I+\tfrac{1}{4}\omega+\tfrac{1}{4}A =$$
$$I+\tfrac{1}{5}\omega+\tfrac{1}{5}A+\tfrac{1}{5}E = \omega+\tfrac{1}{6}A+\tfrac{1}{6}E+\tfrac{1}{6}I$$

Resolvantur quatuor nri in A iuxta conditionem quaestionis: eruntque A, et $\frac{77}{47}A = E$ et $\frac{92}{47}A = I$ et $\frac{101}{47} = \omega$ sumatur igitur pro A nrus quivis qui dividuus est per denominatores reliquorum 47 et 47 et 47 et fiet propositum esto A.47. erit E:77:/ et I.92. et ω.101

ad 30 q. ex Bacheto ad Dioph.

sed et notatu dignum est ad hanc quaestionem, illam etiam posse reduci.

Dato medio trium proportionalium, et aggregato extremorum, extremos invenire.

ex. vt dato medio 8 et summa extremorum
20. m 20 sint inveniendi ipsi extremi. Quia in 3bus proportionalibus, planus sub extremis aequatur quadrato medii, cum medii quadratus sit 64. patet eo reduci propositam quaestionem, vt dividatur 20 in duos nros, quorum mutuo ductu fiat 64.

(De D.) Dato Toto = Z = 30 medio Geometrico inter partes M = 9 quaeritur A; E.

Est pars maior A 27

$A . M :: M .$ minor $\frac{Mq}{A}$ 3

sum $\frac{Aq + Mq}{A} = Z$ 30

$Aq + Mq = ZA$ vel $ZA - Aq = Mq$

fit: $\frac{Zq}{4} - Æ \left(= \frac{X}{2}\right) \pm \frac{Z}{2} = A$

$\frac{Zq}{4} = \frac{900}{4} . 225 - 81 . = 144 \; \sqrt{q}. \; 12 + 15 = 27 = A$

$15 - 12 = 3 = E$

Dioph. lib. 1 qq 29

Datis B et C inuenire tertium, sub quo et B rectangulum, quadratum erit rectanguli sub ipso et C.

Esto A. Quare $BA = CqAq$ vel $\frac{B}{Cq} = A$.

---

30 qq.

Datis Z et Æ: inuenire duo latera.

Esto maius A. minus Z − A quare

~~ZAA~~ $ZA - Aq = Æ$

atqui $\frac{1}{4} Zq - Æ = \frac{1}{4} Xq$. et $\frac{1}{2} Z \pm \frac{1}{2} X = \frac{A}{E}$

---

31 qq.

Datis Z et Zo inuenire duo latera

Esto maius A. minus erit Z − A quare

$Zq - 2,ZA + 2Aq = Zo$ vel.

$ZA - Aq = \frac{Zq - Zo}{2}$ (vide resolutionem quaestionis praecedentis)

---

32 qq.

Datis Z et X inuenire latera.

---

33 qq.

Datis X et Æ inuenire latera.

Esto minor E [pp. 34], maior erit $\frac{RE}{S}$ et

$\frac{SE + RE}{S} \cdot \frac{SqEq + RqEq}{Sq} :: L \cdot T \cdot$ quan

$$\frac{TSE + TRE}{S} = \frac{LSqEq + LRqEq}{Sq}$$

$S)\quad 1 \qquad S$

$$TSqE + TRSE = LSqEq + LRqEq$$

$$TSq + TRS = LSq + LRq \times \frac{Eq}{E} = E$$

$$\frac{TSq + TRS}{LSq + LRq} = E$$

35 pp

$$\frac{TRS - TSq}{LSq + LRq} = E$$

36 pp.

$$\frac{TRS - TSq}{LRq - LSq} = E$$

Dioph. lib. 1. q. 34.

Invenire duos nros quorum minor ad maiorem sit ut S. R. subtripla at suma numerorum ad sumam quadratorum ut L. T. sit subquintupla.

Esto minor A.
erit maior 3 A.
4 A.
Z =
Z = 10 Aq = 20 A
et A = 2 ergo maior e, 6.

---

35 q.

A=2 Invenire duos nros quorum
3A. 6 minor ad maiorem sit S. ad R
et dria numerorum sit ad sumam
~~numerorum~~ Quadratorum ut
L. T.

36

Invenire duos nros quorum
3 minor ad maiorem sit S. R et
9 dria numerorum ad driam
Quadratorum. L. T.

37 ℞

$$\frac{TRs + TSq}{LRq - LSq} = E$$

Dioph: Lib. 1. qq. 37

Invenire duos nros quorum minor ad maiorem sit S·R et suma numerorum ad driam Quadratorum L·T.

---

38 qq.

Invenire duos nros quorum minor sit ad maiorem ut S·R. et maior nrus ad quadratum minoris ut L.T. Esto minor E. Æquao erit $\frac{TR}{LS} = E$

$S \cdot R :: E \cdot \frac{RE}{S} = A$.

go $\frac{RE}{S} \cdot Eq :: L \cdot T$.

Quare $\frac{TRE}{S} = LEq$

$TRE = SLEq$

$TR = \frac{SLEq}{E} = SLE$

$\frac{TR}{SL} = E$.

40 ℔.

$$\frac{TS + TR}{LS} = E$$

41 ℔.

$$\frac{TR - TS}{SL} = E$$

40 ꝓp. Suppl. Lib. 1

Invenire duos nros quorum minor ad maiorem sit ut S·R. et suma numerorum ad quadratum maioris ut L·T.

---

41 ꝓp.

invenire duos nros quorum minor ad maiorem sit S·R et dña numerorum ad quadratum minoris L·T.

---

42 ꝓp.

invenire duos nros quorum minor ad maiorem sit S·R. et minor nrus ad quadratum maioris: vel maior nrus ad quadratum maioris: vel suma numerorum ad quadratum maioris: vel dña numerorum ad quadratum maioris sit L·T.

---

43 ꝓp.

Datis duobus nris B & C invenire tertium A: sic ut C+A in B: A+B in C: et B+C in A: æquali decrescant intervallo.

Quia in 3bus nris Arithmetice ꝓportionalibus duplum medij æquale sumæ extremorum erit $2CA + 2BC = BC + 2BA + CA$

Quare $\frac{BC}{2B - C} = A$.

Famulus annua mercede conductus aureorum decem, & vestis unius, pretio nobis incognito, post menses 4or dimissus a Dno, vestem tulit, & rata mercedis. Qe, quanti fuit vestis?

Quoniam in 4or mensibus tulit famulus vestem, & salario, in reliquis 8 mensibus aureos 10 tulisset. dic igitur. si menses 8 dant aureos 10 quid menses 4. et pare & habebis aureos 5. & tanti fuit vestis. Qd erat Qdm.

Tres Architecti, unusquisque cum sua grege fabrorum, convenientes, absolutionem aedificij pacti sunt. 1us quidem, ad aliquot menses, 2dus paucioribus dimidio, 3tius paucioribus adhuc tertia parte, quam 2dus. Tandem vero, una simul omnes opus aggressi, domum absolverunt, intra duos menses. Quaeritur, quot quisque mensibus singulatim, aedificationem istam peregisset.

Conversionem a praecedenti facit haec Qo, in qua cum dicatur 2dus Architectus paucioribus dimidio mensibus, opus absolvere quam 1us, pone pro tempore 1mi, quod est maximum quemlibet mensium numerum, ut puta 6, erunt igitur 2o, menses 3 & 3o 2. partes 6 in 3 & in 2 erunt complementa 2 & 3 quae simul juncta faciunt 5 adde 1, fit 6. Habes itaque secundum formulam datam in praecedenti, 6 Architectos inter se aequales. Quorum opus in proposito datur absolvi, intra duos menses. Horum ergo mensium 1mi, talis est, quod diviso in 6. proveniat 2. Quem ut invenias multiplica 6 in 2 fit 12. dicemus igitur primum ex Architectis per se solum aedificationem absolvere potuisse 12o mense. Quare et 2dum, mense 6o, & 3um, 4o. Quod erat quaesitum.

Q 8.

Navis instructa maiori velo, ab Hostiensi portu Massiliam navigat, 8 diebus: adhibito autem minori velo, idem facit 5 diebus. Quaeritur si maiori velo sit exarmata, vehiculo minore, quot die cursum eundem perficiat? eodem flatu perseverante.

$\frac{3}{8}$ – 5 – 1 – 13 $\frac{1}{3}$.

fabri 4or sibi succedentes invicem, domum
77 diebus absolverunt; mercede diversa
fabricantes. primus enim diurnas operas locavit
singulas duobus sestertijs, 2dus 3bus, 3us
4or, 4tus quinque. Evenit tandem opere
facto, ut eandem quisque summam pecuniae
reportaret ex mercede. Quaero, quot
quisque dies seorsum in eo domo fabricavit.

Nihil aliud propositum habet quam ut
77, in 4or partes ita dd, ut prima si ducatur
in 2, tantundem producat, quantum 2da, si ducatur
in 3. & 3a in 4. & 4ta in 5. ad
hoc autem adhiberi potest numerus quilibet. sed
ut particularum molestia vitetur in opere,
requiratur talis numerus quem 2.3.4.5.
metiantur, qualis est 120. partire 120
in numeros sestertiorum ordinatim, hoc est in 2.3.
4.5. provenientque quatuor numeri, 60.40.30
24. quos adde simul, fit 154. dispone
regulam

si 154 - 77, -	60?	30.×2 = 60
	40?	20.×3 = 60
	30?	15.×4 = 60
	24?	12.×5 = 60

Quatuor nros invenire, quorum primus cum semisse reliquorum faciat 17. secundus cum aliorum triente 12. Tertius cum aliorum quadrante 13. Quartus item cum aliorum sextante faciat 13.

A	E	J	ω	B	C
1	2	3	4,	17	12

$$A + \frac{E + J + \omega}{2} = 17 = B$$

$$E + \frac{A + J + \omega}{3} = 12 = C$$

$$J + \frac{A + \omega + E}{4} = 13 = D.$$

$$\omega + \frac{A + E + J}{6} = 13 = D.$$

wch Reduced to Integers are.

(1) $2A + E + J + \omega = 2B$

(2) $A + 3E + J + \omega = 3C$

(3) $A + E + 4J + \omega = 4D$

(4) $A + E + J + 6.\omega = 6D$

$3 \,\&\, 4 = 2A + 2E + 5J + 7\omega$

$-\,1 = -2A - E - J - \omega$

Rem: $E + 4J + 6{:}\omega$

subst (1) from 3 & 4. Rem — $E + 4J + 6\omega = (10D - 2B) = F$

1 from 2 Rem $2E - A = (3C - 2B) = G$

1 . 3: $3J - A = (4D - 2B) = H$

1 - 4: $5\omega - A = (6D - 2B) = K.$

$2E - A = G$. by transposit:

$2E = G + A$ &

$E = \frac{G + A}{2}$. $J = \frac{H + A}{3}$ $\omega = \frac{K + A}{5}$

wherefore $\frac{G + A}{2} + \frac{4H + 4A}{3} + \frac{6K + 6A}{5} = F = E + 4J + 6\omega$

$15G + 15A + 40H + 40A + 36K + 36A$.

wch bee added.

$$\frac{15 \quad 10 \quad 6}{30}$$

$\frac{91A + 15G + 40H + 36K}{30} = F$ or

$91A + 15G + 40H + 36K = 30F$ or.

$91A + 15G + 40H - 36K$

$91A = 30F - 15G - 40H - 36K$

so $A = \frac{30F - 15G - 40H - 36K}{91}$

wherefore $A = 6$

$E = 4$

$J = 8$

$\omega = 10$.

De reg. 2. p 192

Data suma qualibet, tres nros invenire, quorum p^s mus cum semisse, sedus cum triente, tertius cum quadrante reliquorum eam sumam singuli constituant.

sit $\frac{17}{Z}$. Nri $\overset{1}{A}$. $\overset{3}{E}$. $\overset{3}{J}$. The equations sett
5: 11: 13. downe & red: will be

(1) $2A + E + J = 34$

(2) $3E + A + J = 51$

(3) $4J + A + E = 68$.

$\times 2$

$8J + 2A + 2E = 136$

$-(1)$ $-1J - 2A - 1E = 34$

$7J + 1E = 102$

His comperti, si sumam mutare libeat, utpote in 85, p regulam ita facies. Si 17 fit 85. Quid 5? Quid 11? Quid 13. opare & invenies tres nros, scil. 25. 55. 65. propositi qualitate prioribus similes.

(2) $3E + A + J = 51$

$\times\ 2$

$6E + 2A + 2J = 102$

− (1) $-E - 2A - J = 34$

soe $5E + J = 68$

$\times\ 7$

$35E + 7J = 476$

− $1E - 7J = 102$

$34E = 374$

so $E = \frac{374}{34} = 11$ & substracting from 68

$5E = 55$

Rem $J = 13$

& lastly accord: from 51
to ye 2d equaon subst: $46 = 3E + J$

there Rem $5 = A$.

Tres Nros invenire, quorum 1us cum Triente reliquorum faciat 14. 2dus cum aliorum quadrante 8. Tertius item cum parte 5ta reliquorum .8.

$1^{us}\ A = 11:\quad A + \frac{E + J}{3} = 14$ gored.

$2^{us}\ E = 4:$

$3:\ J = 5:\quad 3A + E + J = 42.\ (1)$

$E + \frac{A + J}{4} = 8$ go.

$4E + A + J = 32\ (2)$

$J + \frac{A + E}{5} = 8$ go

$5J + A + E = 40\ (3)$

drawn yo (2): $4E + A + J = 32$

$\times 3$

$12E + 3A + 3J = 96$

& substr. (1) $-1E - 3A - J = -42$

$11E$ [redacted] $+ 2J = 54$

drawne $\times 7$

$77E + 14J = 378$

$-2E - 14J = 78$

$75E = 300\quad E = \frac{300}{75} = 4$

multis praeterea modis sup facti aequationibus ratio procedet, quorum erit utilior studiosis investigatio propria, quam aliena traditio.

vid. p. 1/92.

ex tribus istis æquationibus aliæ, vel multipli-
cando, vel invicem addendo sunt faciendæ,
quousq; per detractionem minorum ex
maioribus relinquatur sola quantitas
unius notæ. qd efit.

draw (3) $5J + A + E = 40$

$\times 3$

$15J + 3A + 3E = 120$

& substr: (1) $-1J - 3A - 1E = 42$

$14J + 2E = 78$

having founnd $E = 4$ go $14J = 70$

$J = \frac{70}{14} = 5$

lastly $E + J = 9$ being substracted out of 42

there rem: $33 =$ to $3A$ by r^a (1) go:

$A = \frac{33}{3} = 11.$

De regula quantitati p 189. Lib 3.

Duos n^{ros} invenire, quorum primus cum semisse secundi faciat 30, secundus cum primi triente 20.

$A.$ $\quad A + \frac{E}{2}$ Aeq. $\frac{2A+E}{2} = 30$

$E.$ $\quad 2A + E = 60$

$E + \frac{A}{3}$ Aeq: $\quad \times 3$ $\quad 6A + 3E = 180$

$\frac{3E + A}{3} = 20$ $\quad -A - 3E = 60$

$3E + A = 60$ $\quad 5A = 120$

so $A = \frac{120}{5} = 24$

go $E = 12$ because $A + \frac{E}{2} = 30$.

p. 185 Lib. 3.

Nrum invenire, cuius quadrati duplum iunctis 50, decuplo sui geminato, fiat aequale.

A $\quad \frac{10A}{2} \over 20A$

$Aq.$

$2Aq + 50 = 20A$ or

~~$2Aq$~~ $Aq \frac{+50}{2} = \frac{20A}{2}$ or

$Aq + 25 = 10A$ &

$10A - Aq = 25$

$\frac{1}{2}$ Coeff 5.

sq. 25

$-\sqrt{\frac{25}{0}} + \frac{Z}{2} = 5 = A$

p 181. Lib: 3us

Nrum invenire, qui ductus in 8 & ex producto sublatis 12, residuum quadrato suo faciat aequale.

A
8

$8A - 12 = Aq$ or.

$8A - Aq = 12.$

$\sqrt{u}: \frac{Zq}{4} - E : + \frac{Z}{2} = A$

$\frac{Zq}{4} = 16$

$-E \quad 12$

$\sqrt{4}. \quad 2$

$+4$

$6 = A.$

---

p 184

Nrum 17 ita bipartiri, ut portio maior in semissem ducta minoris producat 36.

$A \times \frac{Z - A}{2} \quad \frac{ZA - Aq}{2} = 36$ &

$ZA - Aq = 72.$

$\frac{1}{2}$ coeff. $\frac{17}{2}$ sq $\frac{289}{4} - E \frac{288}{4}$ so there

Remaines only $\frac{1}{4}$ whose roote is

$\frac{1}{2} + \frac{17}{2} = \frac{18}{2} = 9 = A$ go $E = 8.$

p. 179 Lib: 3.

Duos nros invenire, quorum sit X 3.
& ex ductu alterius in alterum fiat 28.

$A.$

$A - X$

$\overline{Aq - XA} = 28.$

$\frac{1}{2}$ coeff: $\frac{3}{2}$ sq: $\frac{9}{4} + \frac{112}{4}$

$\sqrt{\frac{121}{4}} = \frac{11}{2} + \frac{3}{2} = \frac{14}{2} = 7 = A.$

So $E = 4$

---

p 180

Nrum invenire, cui addendo 8, & ex
ea suma detractione facta, quo sit
optionali additamento, residuum fiat 63.

Dr D.

Quis ē nrus cuius sextuplus plus 16 æquet suum Quadratum?

$BA + D = Aq$ vel $Aq - BA = D$

$\sqrt{u:}\ \frac{Xq}{4} + E : (= \frac{Z}{2}) + \frac{X}{2} = A.$

$4|34|9$
$+ E : 16$
25
$\sqrt{}\ 5.$
$+ \frac{X}{2}\ 3$
$: 8 = A$

Tertij Canonis expla

$ZA - Aq = E.$

Dr D.

Qui sunt duo nri raou {5 R, 3, quorum factus ipsis additus det $27\frac{Z}{2}$.

Esto minor A

ergo maior RA

ff vel E = RAq

$RAq + RA + A = Z$

$Aq + \frac{RA + A}{R} = \frac{Z}{R}$

$Aq + \frac{R + 1}{R} \times A = \frac{Z}{R}$

$\sqrt{u:}\ \frac{Xq}{4} + E : (= \frac{Z}{2}) + \frac{X}{2} = E$

Hæc 2° pertinet ad 1m. Canonem.

p 176. Lib. 3us

Nrum invenire, cuius quadrati dodrans, iuncto besse sui lateris, faciat 31.

$$A.\quad Aq.\ \frac{3Aq}{4} + \frac{2A}{3} = 31.\qquad \frac{9Aq}{12}\quad \frac{8A}{12}$$

$$\frac{9Aq + 8A}{12} = 31 \qquad 31 \times 12 = 62,\ 31 \to 372$$

$$9Aq + 8A = 372$$

$$Aq + \frac{8A}{9} = \frac{372}{9}$$

$$\tfrac{1}{2}\ \text{Coeff}:\ \frac{4}{9}\quad sq:\ \frac{16}{81} + \frac{372}{9}\quad \frac{3348}{81}$$

$$\sqrt{:}\ \frac{3364}{81} = \frac{58}{9} - \frac{4}{9} = \frac{54}{9} = 6 = A.$$

Nrum invenire, cuius quadratum octuplo sui lateris deducto, relinquat 20.

$$A.\quad Aq - 8A = 20.$$

$$\sqrt{u}:\ \frac{Xq}{4} + E:\ + \frac{X}{2} = A.$$

$$\frac{Xq}{4} = 16$$

$$+E\ 20$$

$$\sqrt{.}\ 36 = 6 + 4 = 10 = A.$$

Dr D) Dati {ratione factorum $\} 2 \cdot 5.$ $3 \cdot R$
{aggregato factorum et facti $\cdot 34 = Z$

Quaeruntur factores, factus

$R \cdot S :: A \cdot \frac{SA}{R}$ ergo $E = \frac{SAq}{R} + \frac{\overset{A}{RA} + \overset{E}{SA}}{R} = Z$

vel $SAq + RA + SA = RZ.$

et $Aq + \frac{\overline{R + S}}{S} \times A = \frac{RZ}{S}$

$X = \frac{5}{2}$

$Xq = \frac{25}{4}$ $\frac{Xq}{4} = \frac{25}{16} + \frac{\overset{816}{51}}{1} = \frac{841}{16} \sqrt{\frac{29}{4}}$

$+ \frac{5}{4} = \frac{24}{4} = 6.$

$\sqrt{u}: \frac{Xq}{4} + E (= \frac{Z}{2}) - \frac{X}{2} = E.$

sedi Canonis expla

$Aq - XA = E$

Nrum invenire, cuius quadratum cum suis quatuor lateribus, & additione 7 faciat 52.

A

$Aq + 4A + 7 = 52$. or.

$ - 7$

$Aq + 4A = 45$

$\sqrt{u}: \frac{Xq}{4} + E : - \frac{X}{2} = A$.

$\frac{Xq}{4} = 4$

$+ E = 45$

$\sqrt{.49}. 7 - 2 = 5 = A$.

℘ 175

Duos nros in raoē tripla reperire, ut productum ex ducto alterius in alterum, & ad iuncto maiori, indeque sublatis 4, residuum fiat 32.

$A. \quad 3A.$

$\frac{A}{3Aq} + 3A - 4 = 32$ or

$3Aq + 3A = 32 + 4 = 36.$

$Aq + \frac{3A}{3} = \frac{36}{3}$

$Aq + A = 12$

$\sqrt{u}: \frac{Xq}{4} + E : - \frac{X}{2} = A$

$\sqrt{u}\ \frac{Xq}{4} = \frac{1}{4} + E\ \frac{48}{4} = \frac{49}{4}. \frac{7}{2} - \frac{1}{2} = \frac{6}{2} = 3 = A$

& $9 = 3A$

$D. \; D$

Qui s[un]t duo nu[mer]i ra[ti]o[n]is $\begin{cases} 5.R \\ 3.S \end{cases}$ quoru[m] $E + A + E = 272 = D$ — primi Canonis expla[natio]. $Aq + XA = E$ ~~...~~

$S.R :: E . \frac{RE}{S}$

$\text{go } \frac{REq}{S} + \frac{SE + RE}{S} = D \text{ vel}$

$REq + SE + RE = SD \text{ el}$

$Eq + \frac{SE + RE}{R} = \frac{SD}{R} \text{ vel}$

$Eq + \frac{(S + R \times E)}{R} = \frac{SD}{R}$

$\sqrt{u}: \frac{Xq}{4} + E : (= \frac{Z}{2}) - \frac{X}{2} = A$

$X \; \frac{8}{5} \; Xq = \frac{64}{25} \; \frac{Xq}{4} = \frac{16}{25} + \frac{4080 \text{ (corr. } 816)}{5} = E$

$5 \quad 5 \quad 1 \quad \frac{}{25}$

$\text{i.e. } \frac{4096}{25}$

$\sqrt{.} \; \frac{64}{5} - \frac{4}{5} \text{ Rem. } \frac{60}{5} = 12 = A$

Probl: 35 Lib: 3us

Nrum invenire, qui ductus in se, postea in productum, & detractis inde 7 residuum fiat 57

$$\frac{\frac{A}{Aq}}{Ac} - 7 = 57 \text{ or } Ac = 64 \text{ so } A = 4$$

Probl: 36.

Nrum invenire, qui ductus in sui dimidium, ~~&~~ ~~productum~~, & productum in quadrantem, uncts 2, totum faciat 218.

$$A \times \frac{A}{2} \quad \frac{Aq}{2} \times \frac{A}{4} \text{ is } \frac{Ac}{8} + 2 = 218 \text{ or.}$$

$$\frac{Ac}{8} = 216.$$

$$\frac{8}{Ac = 1728} \text{ whose cr. is } 12 = A$$

Probl: 37.

Duos nros in raoe dupla reperire, quorum alter ductus in alterum, & maior in productum summam faciant 108.

$$\frac{A}{2A} \quad \frac{\frac{2Aq}{2A}}{4Ac} = 108 \text{ \& } Ac = \frac{108}{4} = 27 \text{ so } A = 3 \text{ \& } 2A = 6.$$

probl: 33 Lib: 3iu

Duos nros in raoe dupla sesquialtera repire, ex quorum inter se ductu, & quinta parte maioris in quartam minoris, & summae productorum additis 8 totum faciat 50.

$$A \times \frac{5A}{2} \cdot \frac{5Aq}{2} + \frac{Aq}{8} + 8 = 50$$

$\frac{1}{5}$ of $\frac{5A}{2}$ is $\frac{5A}{10}$ or $\frac{A}{2} \times \frac{A}{4}$ is $\frac{Aq}{8}$

$$\frac{\overset{20}{5} Aq}{2} + \frac{Aq}{8}$$

1 2 4

8

$$\frac{21\,Aq}{8} + 8 = 50, \text{ or}$$

$$\frac{21\,Aq}{8} = 50 - 8 = \frac{42}{8}$$

$$21\,Aq = 336$$

$$Aq = \frac{336}{21} = 16.$$

so $A = 4$

& $\frac{5A}{2} = 10$

probl: 34

Duos nros in raoe tripla reperire, quorum quadrata simul sint aequalia ei quod fit ex ductu unius in alterum quater sublatis 8.

$$\begin{array}{ll} A & Aq \\ 3A & 9Aq \\ \hline 3Aq & 10\,Aq = 12\,Aq - 8 \\ 4 & \\ \hline 12\,Aq. & \end{array}$$

go $2\,Aq = 8$

& $Aq = \frac{8}{2} = 4$

so $A = 2$

& $3A = 6$.

Nrum invenire, qui duplicatus & in se ductus producat duplum sui cubi

A

$2A$

$2A$

$4Aq = 2Ac$

$\frac{Aq}{2A} = 4$ & $A = \frac{4}{2} = 2$

Probl: 29

Nrum invenire, qui ductus in se, & producto iunctis 4, faciat 29.

A

$Aq + 4 = 29$

$Aq = 29 - 4 = 25$ whose $\sqrt{\,}$ 5 $= A$

Probl: 30

Nrum invenire, qui ductus in se faciat 30

A

$Aq = 30$ ergo $A = \sqrt{30}$.

Probl: 31.

Nrum invenire, qui ductus in se, & productum in 6, iunctisque 4, totum faciat 58

A

Aq } $6Aq + 4 = 58$ & $6Aq = 54$

$\times 6$ } so $Aq = \frac{54}{6} = 9$

so $A = 3$.

Probl: 32

Nrum invenire qui ductus in sui quadrantem, & a producto monade sublata relinquat 99.

$A \times \frac{A}{4}$ is $\frac{Aq}{4} - 1 = 99$ or $\frac{Aq}{4} = 100$

& $Aq = 400$

so $A = 20$

Problema 23

Duos nros invenire, quorum sit $\overset{3}{X}$. ita ut minor ductus in maiorem, & producto additis 24 summa fiat aequalis quadrato maioris.

A

$A - X = E$

$Aq - XA + 24 = Aq$. & $X4 = XA$

go $A = \frac{24}{X} = 8$.

$E = 5$.

Probl: 24

Duos nros invenire, qui simul iuncti faciant 12, & ipsorum quadrata differant in 24

Dat Z · X · 2ᵗᵃ A & E

Probl: 25

Nrum quadratum invenire, quo diviso in suum latus − 4 proveniat 6 plus, quam ipsum latus.

$\frac{Aq}{A-4} = A + 6$.

$A - 4$

$Aq \frac{+6A}{-4A} - 24$

$Aq = Aq + 2A - 24$ & $2A = 24$

go $A = \frac{24}{2} = 12$.

Probl: 26.

Nrum invenire, cuius quadratum sit aequale quatuor suis lateribus.

$Aq = 4A$ go $\frac{Aq}{A} = A = 4$.

27

$Aq = 2A$ go

$\frac{Aq}{A} = A = 2$.

Probl: 22 Lib: 3us

Quatuor numeros continué proportionales invenire, quorum 3us ad 1m sit in ratione dupla sesquiquarta, & sit omnium summa 65.

A is ye 1st go according to ye question ye 3d $\frac{9A}{4}$ then ye 2d is a meane proportionall betweene these two. therefore multiply ym together & they make $\frac{9Aq}{4}$ whose roote $\frac{3A}{2}$ = to ye 2d.

then having 3 termes to find ye 4th say by ye rule of three.

$A \quad \frac{3A}{2} \quad \frac{9A}{4}$

$\frac{3A}{2} \quad \frac{9A}{4}$ — $\frac{27Aq}{8}$ wch dd by A ye 1 terme ye quotient gives $\frac{27A}{8}$ = 4th terme

~~A + 3A + 9A + 27A~~

$\frac{73A}{4}$

$8A + \frac{3A}{2} + \frac{9A}{4} + \frac{27A}{8}$ (= $12A + 18A + 27A$, in eighths)

$\frac{65A}{8} = \frac{65}{8}$

$65A = 520$

$A = \frac{520}{65} = 8$

4 2 1 / 8

1: A = 8
2 $\frac{3A}{2}$ = 12
3 $\frac{9A}{4}$ = 18
4 $\frac{27A}{8}$ = 27
65

Probl: 19 Lib: 3.

Nrum 22 in duas partes ita dividere, ut dimidium minoris, dempta monade, sit quadrans maioris.

A

$Z - A = E$

$\frac{Z - A - 1}{2}$

Red: $\frac{Z - A - 2}{2} = \frac{A}{4}$. vel mō alternly. $4Z - 4A - 8 = 2A$

$+ 4A$

$4Z - 8 = 6A$

$E = 8\frac{2}{3}$ fo $A = \frac{80}{6} = 13\frac{1}{3}$

$\frac{E}{2} = 4\frac{1}{3}$

$\frac{E}{2} - 1 = 3\frac{1}{3}$ vel Red $= \frac{10}{3} = \frac{1}{4}$ of $\frac{40}{3}$ fo A Red

Probl: 20

Quinque nros invenire, quorum primus sit 5, progredientes æqualiter, qui simul iuncti faciunt 70

Dat: $\overset{5}{T} \cdot \overset{8}{\alpha} \cdot \overset{70}{Z}$: Qtur. X

Probl: 21.

Nrum invenire quo duplicato, & sublatis 8, deinde residuo triplicato, deductisq 20, nihil remaneat.

A.

$2A - 8$

$\underline{\quad 3 \quad}$

$6A - 24 - 20 = 0$

$6A = 24 + 20 = 44$

$A = \frac{44}{6} = 7\frac{1}{3}$.

Probl: 18. Lib. 3.

Nrum 40 in tres partes ita dividere vt ex prima quidem, si partiaris in 2, proveniat plus 5, quam ex secunda si dividatur in 3. ex tertia autem divisa in 5, proveniat minus 1, quam ex secunda divisa in 4.

A is ye 1st pt. then because $\frac{A}{2} - 5 = \frac{2^d\,pt}{3}$

go $\frac{A}{2} - 5$ wch red: $\frac{A-10}{2} \times 3$ makes $\frac{3A-30}{2} = 2^d$

& $\frac{3A-30}{2}$ being dd by 4. is $\frac{3A-30}{8}$ from

whence substracting 1 is $\frac{3A-38}{8} = \frac{3^d\,pt}{5}$

wherefore $\frac{3A-38}{8} \times 5$ wch makes $\frac{15A-190}{8} = 3^d\,pt.$

$$8A + \frac{\overset{12A-120}{3A-30}}{2} + \frac{15A-190}{8}$$

2 4
1
———
8

$1^{pt} = A = 18$
$2 = \frac{3A-30}{2} = 12$
$3 = \frac{15A-190}{8} = 10$
$= 40$

$1 = 8A$
$2 = 12A - 120$
$3 = 15A - 190$

$$\frac{35A-310}{8} = \frac{40}{8}$$

$35A - 310 = 320$
$+310$
$35A = 630$ & $A = \frac{630}{35} = 18$

probl: 15 Lib 3

Nrum 55 in quinq ptes dividere, quæ sese triade semper excedant.

Dat: $\overset{55}{Z}$ · $\overset{5}{T}$ · $\overset{3}{X}$ · Q^k · α · ω ꝑ 19^{th}. 20^{th} ... propons.

---

probl: 16.

Duos nros invenire quorum sit dria 3, & ambo simul faciant 19.

Dat $\overset{3}{X}$ $\overset{19}{Z}$ · Q^k A · E .

---

probl: 17

Nrum 24 in duas partes ita dividere, vt maior si partiatur in 2 fiat proveniens quadruplum alterius parti[s] ... in 4.

$$\frac{A}{2} = \frac{Z - A}{4} \times 4 = Z - A$$

$$\frac{A}{Z - A} = E$$

$$\frac{A}{2} = Z - A$$

$$A = 2Z - 2A$$

$$+2A$$

$$3A = 2Z$$

$$A = \frac{2Z}{3} = 16.$$

Xrum 38 in tres partes ita dividere, ut dimidium primæ, triplum secundæ, quadrans tertiæ invicem sint æquales.

A is ye 1st part.

$\frac{A}{2}$ is ye halfe of ye first pt. & because the Quotient of this must be equall to ye triple of ye 2d therefore

$\frac{1}{3}$ of $\frac{A}{2} = \frac{A}{6}$ is the 2d part.

and because $\frac{A}{2}$ must be equall to $\frac{1}{4}$ of ye 3d.

go $\frac{A}{2} \times 4 = \frac{4A}{2} = 2A$ is ye 3d.

[illegible]

1st = A = 12

3d = 2A = 24

2d = $\frac{A}{6}$ = 2

{38}

$3A + \frac{A}{6}$ wch red. is $\frac{19A}{6} = 38$

$19A = 228$

$A = \frac{228}{19} = 12$.

Nrum̄ 9 in tres partes ita dividere, ut minima quidem si ducatur in 6, producat plus 4 quam maxima si ducatur in 2, media vero ducta in 3, producat minus 3, quam fecit minima ducta in 6.

A is y^e least. × 6. is

$$\frac{A \times 6}{6A}$$

go $6A - 4$ = by y^e greatest × 2 therefore.

$\frac{6A-4}{2} = 3A - 2$ is y^e greatest pt.

& $6A - 3$ = by y^e middle pt × 3. go

$\frac{6A-3}{3} = 2A - 1$ is y^e middle pt.

A is y^e least pt. = 2

3A − 2 is y^e greatest pt = 4

2A − 1 is y^e middle pt. = 3

$$= 9.$$

$6A - 3 = 9$. or

$6A = 9 + 3 = 12$

$A = \frac{12}{6} = 2$

Probl: 11

Xrum 70 in tres partes ita dividere, ut prima quidem secundam excedat in 7, secunda vero tertiam in 18.

3^a: $A = 9$

2^a: $A + 18 = 27$

1^a: $A + 25 = 34$

$$3A + 43 = 70$$
$$-43$$

$$3A = 27 \ \& \ A = \frac{27}{3} = 9.$$

Probl: 12

Xrum 40 in tres partes ita dividere ut prima quidem 2dæ sit duplum, & adhuc excedat in 4. secunda vero tertiæ duplum deficiens in 2.

3^a: A — 6

2^a: $2A - 2$ — 10

1: $4A - 4 + 4$ — 24.

$$7A - 2 = 40 \text{ or.}$$
$$+2$$

$$7A = 42. \text{ Jo } A = \frac{42}{7} = 6.$$

Nrum 18 in duas partes ita dividere, ut addendo alteri quidem 2, & alteri 7, ipsa composita se habeant in raoe dupla.

Ita proponit stephanus, n̄ advertens ad hoc responderi posse dupliciter. Quod est vitium in oppositu, cuius investigaoem ostendam utroq modo.

$A.$ $\qquad A + 2$ sic habes partes compositas. & quia
$Z - A.$ $\qquad Z - A + 7$ opponitur, ut ipsa composita sint in dupla raoe

dupliea $A + 2$
$\quad 2$
$2A + 4 = Z - A + 7$
$\quad - 4$
$+A$
$3A = Z + 3 = 21$
$A = \frac{21}{3} = 7.$

vel duplica
$Z - A + 7$
$\quad 2$
$2Z - 2A + 14 = A + 2.$
$\quad -2 \quad +2A$
$2Z + 12 = 3A$
$\text{fo } A = \frac{2Z + 12}{3} = 48 = 16.$

$A = 7$
$+2$
9 subdupla 18.

$Z - A = 11$
$+7$
18 dupla 9.

$A = 16$
$+2$
18 dupla 9.

$Z - A = 2$
$+7$
9. ut atm, sicut necesse est, solutio coarctetur in unum, mutandum erit in ppooe sic, ut addendo minori quidem 2, & maiori 7 ipsa composita se habeant in raoe dupla. & tunc quaesita partes nihil aliud esse possunt, qm 7 & 11.

$A + 7$

$\underline{\quad 2 \quad}$

$2A + 14 = Z - A + 2$

$\qquad\qquad\qquad\qquad - 14$

$+ A$

$3A = Z - 12 = 68 A = 2 \qquad E = 16$

$\qquad\qquad\qquad\qquad + 7 \qquad\quad + 2$

$\qquad\qquad\qquad\qquad\; 9$ subdupla: 18

~~Z~~ $A + 2$

$\underline{\quad 2 \quad}$

$2Z - 2A + 4 = A + 7$

$\qquad\quad - 7 \quad + 2A$

$2Z - 3 = 3A \cdot$ go $A = 11 \qquad E = 7$

$\qquad\qquad\qquad\qquad + 7 \qquad\quad + 2$

$\qquad\qquad\qquad\qquad 18$ duplum 9

Numerum invenire, ex quo sublatis dimidio, & triente & postremo 2, residuum fiat 8.

A. $\frac{A}{2}$ $\frac{A}{3}$ (above: $3A + 2A$, below: 6) so there remaines $\frac{A}{6} - 2 = 8$.

or $\frac{A}{6} = 10$ go $A = 60$

---

prob: 9.

Nrum 12 in duas ptes ita dividere, ut addendo 4 minori, & maiori 2, una sit aequalis alteri.

A is ye greater pt.

$Z - A = E$.

go: $A + 2 = Z - A + 4$. p transp:
$+A \qquad\qquad -2$

$2A = Z + 2$.

& $A = \frac{Z + 2}{2} = 7$ go $E = 5$

---

probl: 10.

Probl: 5

Nrum invenire, qui duplicatus, & additis 2, tandundem faciat, qm si eidem adijciantur 11.

$$A$$
$$2A + 2 = A + 11$$
$$-A \qquad\quad -2$$

$$A = 9.$$

Probl: 6.

Nrum invenire, qui triplicatus, & inde sublatis 7 eandem summam componat qm si duplicatus fuerit, & auferatur inde monas.

$$A$$
$$3A - 7 = 2A - 1$$
$$-2A \qquad\quad +7$$

$$A = 6.$$

Probl: 7

Nrum invenire, qui cum sui dimidio faciat minus 10, qm si ducatur in 2 & producto addatur 4. wherefore if I take 10 from ye other side of ye = they shalbe equall.

$$A + \frac{A}{2}$$

Red: $\frac{3A}{2} = 2A + 4 - 10.$

$$3A = 4A + 8 - 20$$
$$3A = 4A - 12$$
$$A = 12.$$

Joh: B. lib. 3. prob: 1.

Numerum invenire qui ductus in 4 rursusq productum in 2 faciat 24.

$A.$

$4A.$

$\frac{2}{8A} = 24$ go $A = \frac{24}{8}$ i.e. 3.

---

prob: 2.

Numerum invenire qui partitus in 5 eius quod provenit decuplum, componat 15

A

$\frac{A}{5}$ wch drawne x 10 $\frac{10A}{5}$ or: $2A = 15.$

so $A = \frac{15}{2} = 7\frac{1}{2}$

---

probl: 3

Nrum invenire, qui ductus in 4, & producto additis 5, totum faciat 17

$\frac{A}{4}$

$4A + 5 = 17$: & $4A = 17 - 5 = 12$

go $A = \frac{12}{4} = 3.$

---

probl: 4

Nrum invenire qui ductus in 2 & a producto sublatis 6 residuum fiat 10

$\frac{A}{2}$

$2A - 6 = 10$ go $2A = 10 + 6 = 16$

& $A = \frac{16}{2} = 8.$

De Canone simplici

A = 8

Aq = 8

Ac = 8.

37.ª problem. lib. 3.
sunt expla.

¶ 111

De reg. positionis duplo.

Numerum 47 in tres partes ita dividere ut 2da primam excedat in 5, & 3tia 2dam in 10.

$$1:\ A = 9$$
$$2:\ A + 5 = 14$$
$$3\ \ A + 15 = 24$$
$$3A + 20 = 47$$
$$-20$$
$$3A = 27 \ \&\ A = \frac{27}{3} = 9.$$

Joh: Bus: p 109 Lib. 2.
de Reg: positionis

Numerum invenire, cuius dimidij, trientis, & quadrantis suma faciat 65

$A \quad \dfrac{6A+4A+3A}{\frac{A}{2}+\frac{A}{3}+\frac{A}{4}} \qquad \dfrac{13A}{12} = 65$

$\dfrac{6\ \ 4\ \ 3}{12}$

$65 \times 12 = 130 + 65 = 780$

$13A = 780$

$A = \dfrac{780}{13} = 60$

---

p 110.

Nrum invenire qui cum suo dodrante compositus & in 3 multiplicatus producat 84

$A + \dfrac{3A}{4}$ Red. $\dfrac{7A}{4} \times 3 = \dfrac{21A}{4} = 84$

$84 \times 4 = 336$

go $21A = 336$.

$A = \dfrac{336}{21} = 16$.

---

p 111

Duos nros in ratione 3pla reperire, qui simul iuncti, & ex suma besse detracto fiat residuum 12.

$A \quad 4A - \frac{2}{3}$ of $4A = \dfrac{8A}{3}$

$3A$

$\dfrac{12A}{\frac{4A}{1}} - \dfrac{8A}{\frac{8A}{3}} \qquad$ so $\dfrac{4A}{3} = \dfrac{12}{3}$

$\overline{\ 3\ }$

$4A = 36$

$A = \dfrac{36}{4} = 9$.

$3A = 27$

Joh: Buteonis Logistica.
Lugduni 1559.